Johnson Controls

2020

ANNUAL SHAREHOLDERS & PROXY STATEMENT

Notice of Annual General Meeting of Shareholders

Date and Time	Place	Record Date
3:00 pm, local time, March 4, 2020	The Merrion Hotel, 24 Upper Merrion Street, Dublin 2, Ireland	January 2, 2020

NOTICE IS HEREBY GIVEN that the 2020 Annual General Meeting of Shareholders of Johnson Controls International plc will be held on March 4, 2020 at The Merrion Hotel, 24 Upper Merrion Street, Dublin 2, Ireland at 3:00 pm, local time for the following purposes:

Ordinary Business

1. By separate resolutions, to elect each of the following individuals as Directors for a period of one year, expiring at the end of the Company's Annual General Meeting of Shareholders in 2020:

(a) Jean Blackwell	(b) Pierre Cohade	(c) Michael E. Daniels
(d) Juan Pablo del Valle Perochena	(e) W. Roy Dunbar	(f) Gretchen R. Haggerty
(g) Simone Menne	(h) George R. Oliver	(i) Jürgen Tinggren
(j) Mark Vergnano	(k) R. David Yost	(l) John D. Young

2. To ratify the appointment of PricewaterhouseCoopers LLP as the independent auditors of the Company and to authorize the Audit Committee of the Board of Directors to set the auditors' remuneration.

Special Business

3. To authorize the Company and/or any subsidiary of the Company to make market purchases of Company shares.
4. To determine the price range at which the Company can re-allot shares that it holds as treasury shares (special resolution).
5. To approve, in a non-binding advisory vote, the compensation of the named executive officers.
6. To approve the Directors' authority to allot shares up to approximately 33% of issued share capital.
7. To approve the waiver of statutory pre-emption rights with respect to up to 5% of issued share capital (special resolution).
8. To act on such other business as may properly come before the meeting or any adjournment thereof.

This notice of Annual General Meeting and proxy statement and the enclosed proxy card are first being sent on or about January 17, 2020 to each holder of record of the Company's ordinary shares at the close of business on January 2, 2020. The record date for the entitlement to vote at the Annual General Meeting is January 2, 2020 and only registered shareholders of record on such date are entitled to notice of, and to attend and vote at, the Annual General Meeting and any adjournment or postponement thereof. During the meeting, management will also present the Company's Irish Statutory Accounts for the fiscal year ended September 30, 2019. **Whether or not you plan to attend the meeting, please complete, sign, date and return the enclosed proxy card to ensure that your shares are represented at the meeting.** Shareholders of record who attend the meeting may vote their shares personally, even though they have sent in proxies. In addition to the above resolutions, the business of the Annual General Meeting shall include, prior to the proposal of the above resolutions, the consideration of the Company’s statutory financial statements and the report of the Directors and of the statutory auditors and a review by the shareholders of the Company’s affairs.

This proxy statement and our Annual Report on Form 10-K for the fiscal year ended September 30, 2019 and our Irish Statutory Accounts are available to shareholders at www.proxyvote.com and are also available in the Investor Relations section of our website at www.johnsoncontrols.com.

By Order of the Board of Directors,

John Donofrio
Executive Vice President and General Counsel

January 17, 2020

PLEASE PROMPTLY COMPLETE, SIGN, DATE AND RETURN THE ENCLOSED PROXY CARD. THE PROXY IS REVOCABLE AND IT WILL NOT BE USED IF YOU: GIVE WRITTEN NOTICE OF REVOCATION TO THE PROXY PRIOR TO THE VOTE TO BE TAKEN AT THE MEETING; SUBMIT A LATER-DATED PROXY; OR ATTEND AND VOTE PERSONALLY AT THE MEETING.

ANY SHAREHOLDER ENTITLED TO ATTEND AND VOTE AT THE MEETING MAY APPOINT ONE OR MORE PROXIES USING THE ENCLOSED PROXY CARD (OR THE FORM IN SECTION 184 OF THE COMPANIES ACT 2014) TO ATTEND, SPEAK AND VOTE ON THAT SHAREHOLDER’S BEHALF. THE PROXY NEED NOT BE A SHAREHOLDER. PROXIES MAY BE APPOINTED VIA THE INTERNET OR PHONE IN THE MANNER SET OUT IN THE ENCLOSED PROXY CARD. ALTERNATIVELY THEY MAY BE APPOINTED BY DEPOSITING THE ENCLOSED PROXY CARD (OR OTHER VALID SIGNED INSTRUMENT OF PROXY) WITH JOHNSON CONTROLS INTERNATIONAL PLC C/O BROADRIDGE, 51 MERCEDES WAY, EDGEWOOD, NY 11717 BY 5:00 P.M., EASTERN STANDARD TIME, ON MARCH 3, 2020 (WHICH WILL THEN BE FORWARDED TO JOHNSON CONTROLS INTERNATIONAL PLC’S REGISTERED ADDRESS ELECTRONICALLY) OR WITH JOHNSON CONTROLS INTERNATIONAL PLC, ONE ALBERT QUAY, CORK, IRELAND BY 5:00 P.M. LOCAL TIME ON MARCH 3, 2020. IF YOU WISH TO APPOINT A PERSON OTHER THAN THE INDIVIDUAL SPECIFIED IN THE ENCLOSED PROXY CARD, PLEASE CONTACT OUR COMPANY SECRETARY AND ALSO NOTE THAT YOUR NOMINATED PROXY MUST ATTEND THE MEETING IN PERSON IN ORDER FOR YOUR VOTES TO BE CAST.

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Unless we have indicated otherwise in this proxy statement, references to the “Company,” “Johnson Controls,” “we,” “us,” “our” and similar terms refer to Johnson Controls International plc and its consolidated subsidiaries.

Proxy Summary

This proxy summary is intended to provide a broad overview of our 2019 performance, corporate governance and compensation highlights. As this is only a summary, we encourage you to read the entire Proxy Statement for more information prior to voting.

Annual General Meeting of Shareholders

Date and Time
3:00 pm, local time,
March 4, 2020

Place
The Merrion Hotel,
24 Upper Merrion Street,
Dublin 2, Ireland

Record Date
January 2, 2020

Admission. All shareholders invited to attend, registration will occur on day of meeting

Meeting Agenda and Voting Matters

Proposal		Board's Voting Recommendation	Page Reference
No. 1	Election of Directors	✓ FOR (each nominee)	p. 5
No. 2	Ratify Appointment of Independent Auditors and Authorize Audit Committee to set auditors' remuneration	✓ FOR (both 2(a) and 2(b))	p. 11
No. 3	Authorize market purchases of Company shares by the Company and/or any subsidiary	✓ FOR	p. 14
No. 4	Determine the price range to re-allot treasury shares	✓ FOR	p. 15
No. 5	Advisory Vote to Approve Executive Compensation	✓ FOR	p. 16
No. 6	Approve the allotment of up to 33% of issued share capital	✓ FOR	p. 17
No. 7	Approve the waiver of statutory pre-emption rights	✓ FOR	p. 18

2019 Performance Highlights

➜ Financial Results — Delivered on Commitments to Shareholders

- **Organic Sales Growth of 5%**
- **Adjusted EPS from continuing operations of $1.96, up 23% from prior year**
- **Adjusted free cash flow of $1.7 billion, representing a 99% conversion rate**
- **Adjusted EBIT Margin Expansion of 60bps**
- **Synergy and Productivity Savings of $196 million**

During fiscal year 2019, our total shareholder return increased 28.9% compared to 4.3% for the S&P 500 and 1.4% for the S&P 500 Industrials Index as we continued our transformation and made significant progress in advancing our strategic initiatives and growth agenda, implementing operational improvements, improving the employee experience, and delivering financial commitments.

* See Annex I to this Proxy Statement for a reconciliation of organic sales growth, adjusted EPS from continuing operations, adjusted free cash flow, free cash flow conversion and adjusted EBIT margin to our results for the most directly comparable financial measures as reported under generally accepted accounting principles in the United States.

➜ Portfolio Transformation — Sale of Power Solutions Business

- On April 30, 2019, the Company completed the sale of its Power Solutions business for a purchase price of $13.2 billion. The net cash proceeds after tax and transaction-related expenses were $11.6 billion. The sale transformed the Company into a “pure play” buildings company, positioning it to be a leader in the evolution of smart buildings, infrastructure and cities.

➜ Capital Deployment — Significant Reduction in Debt and Shares Outstanding

- During fiscal year 2019, we repurchased approximately 155 million shares for approximately $6 billion, lowering our weighted average share count by more than 6.1%.
- Primarily as a result of the deployment of proceeds from the Power Solutions sale, we reduced debt by $3.7 billion.

➜ Key Leadership Appointments — Leveraging Both Internal and External Talent to Adapt to the Rapidly Changing Nature of our Business

- In September 2018, Visal Leng was named Vice President and President, Building Solutions, APAC. Mr. Leng is a seasoned leader and is instrumental in driving the Company’s growth platform across Asia Pacific to position Johnson Controls as a leader in smart and sustainable solutions for its customers.
- In July 2019, Jeff Williams was named Vice President and President, Global Products, Building Technologies & Solutions. Jeff has an established track record in his 35 years of experience with Johnson Controls. He most recently served as Vice President and President, Building Solutions, Europe, Middle East, Africa and Latin America (EMEALA) where he led sustained growth and improved margins across the region.
- In September 2019, Tomas Brannemo was named Vice President and President, Building Solutions Europe, Middle East, Africa, and Latin America (EMEALA), succeeding Mr. Williams. Mr. Brannemo brings to Johnson Controls a wealth of experience in strategy, sales and manufacturing and is a seasoned leader with strong business acumen and a growth mindset.
- In October 2019, Michael Ellis was named Executive Vice President and Chief Customer & Digital Officer. In this newly created role, Mr. Ellis will oversee the Company’s digital strategy, innovation and execution, working closely with customers to drive new growth and value opportunities across the globe.
- In December 2019, Ganesh Ramaswamy was named Vice President and President, Global Services and Transformation. In this newly created role, Mr. Ramaswamy will lead the Company’s global services business of approximately $6.3 billion. He will also drive the Company’s transformation by improving consistency of fundamentals across the Company’s global direct channels, leverage infrastructure and work closely with regional leaders to execute strategic priorities.

➜ Sustainability and Corporate Responsibility Highlights

- At the UN Climate Action Summit in September 2019, Johnson Controls made three additional global commitments including the Three Percent Club for Energy Efficiency, the Cool Coalition and the EP100 Cooling Challenge. These commitments expand on our existing work with the World Resources Institute and Sustainable Energy for All with a focus on building efficiency and highly efficient cooling solutions that reduce the impact to the environment.
- In December 2019, we entered into two of the first sustainable improvement loans in the U.S. and the industrial sector with the execution of our new $2.5 billion Five-Year Senior Revolving Credit Facility and our $500 million 364 Day Senior Revolving Credit Facility. These facilities include a sustainability-linked pricing mechanism that reduces interest rates applicable to the facilities in connection with our sustainability performance, including reductions in our greenhouse gas intensity and improvements in our safety record through a reduction in our total recordable incident rate.
- Johnson Controls achieved two significant sustainability milestones in 2019 with respect to its legacy Johnson Controls operations by reducing greenhouse gas intensity by one-half while doubling the energy productivity of these operations over a 16 year period.
- Johnson Controls, along with its project partners, won the Digie Award for “Most Intelligent Building — Corporate Headquarters” for its groundbreaking work on Bee’ah’s new headquarters in the United Arab Emirates. The award recognizes extraordinary examples of buildings, projects and communities that best demonstrate smart, connected, high performance intelligent building concepts throughout the world.

Our Director Nominees

11 of 12 Directors are independent	**25%** of Directors are Women	**50%** of Directors are ethnically or racially diverse or non-US citizens	**50%** of Directors have CEO experience	**4** years average tenure	**50%** of Directors joined after September 2016 merger

We are asking you to vote ***FOR*** all the director nominees listed below. All current directors attended at least 75% of the Board and committee meetings on which he or she sits. Detailed information regarding these individuals, along with all other Board nominees, is set forth under Proposal Number One. Summary information is set forth below.

					Current Committee Membership			
Nominee	Age	Director Since	Principal Occupation	Independent	AC	CC	EC	GC
Jean Blackwell	65	2018	Retired Executive Vice President & Chief Financial Officer of Cummins Inc.	●		●		
Pierre Cohade	58	2018	Former Chief Executive Officer of Triangle Tyre Co. Ltd.	●	●			
Michael E. Daniels	65	2010	Retired Senior Vice President of Global Technology at IBM	●		Chair	●	
Juan Pablo del Valle Perochena	47	2016	Chairman of Orbia Advance Corporation, S.A.B. de C.V.	●			●	Chair
W. Roy Dunbar	58	2017	Retired CEO and Chairman Network Solutions	●		●		
Gretchen R. Haggerty	64	2018	Retired Executive Vice President & Chief Financial Officer of United States Steel Corporation	●	●			
Simone Menne	59	2018	Former Chief Financial Officer, Boehringer Ingelheim	●	●			
George R. Oliver	59	2012	Chairman and Chief Executive Officer of Johnson Controls				●	
Jürgen Tinggren*	61	2014	Retired Chief Executive Officer and Director of Schindler Group	●	Chair		●	
Mark Vergnano	61	2016	President, Chief Executive Officer and Director, The Chemours Company	●		●		
R. David Yost	72	2009	Retired Chief Executive Officer of AmerisourceBergen	●				●
John D. Young	55	2018	Chief Business Officer, Pfizer Inc.	●				●

AC = Audit Committee
CC = Compensation Committee
EC = Executive Committee
GC = Governance Committee

* Independent Lead Director

Non-Binding Advisory Vote on Executive Compensation

Proposal Number Five is our annual advisory vote on the Company’s executive compensation philosophy and program. Detailed information regarding these matters is included under the heading “Compensation Discussion & Analysis,” and we urge you to read it in its entirety. Our compensation philosophy and structure for executive officers remains dedicated to the concept of paying for performance and continues to be heavily weighted with performance-based awards.

PROPOSAL NUMBER ONE

ELECTION OF DIRECTORS

Upon the recommendation of the Governance Committee, the Board has nominated for election at the Annual General Meeting a slate of 12 nominees, all of whom currently serve on our Board. Biographical information regarding each of the nominees is set forth below. We are not aware of any reason why any of the nominees will not be able to serve if elected. The term of office for members of the Board of Directors commences upon election and terminates upon completion of the first Annual General Meeting of Shareholders following election.

Jean Blackwell, Age 65

Director Since: June 2018
Independent: Yes
Committee: Compensation
Other Public Directorships:
- Celanese Corporation
- Ingevity Corporation

Ms. Blackwell served as Chief Executive Officer of Cummins Foundation and Executive Vice President, Corporate Responsibility, of Cummins Inc., a global power leader that designs, manufactures, distributes and services diesel and natural gas engines and engine-related component products, from March 2008 until her retirement in March 2013. She previously served as Executive Vice President and Chief Financial Officer from 2003 to 2008, Vice President, Cummins Business Services from 2001 to 2003, Vice President, Human Resources from 1998 to 2001, and Vice President and General Counsel from 1997 to 1998 of Cummins Inc. Prior thereto, Ms. Blackwell was a partner at the Indianapolis law firm of Bose McKinney & Evans LLP from 1984 to 1991. She has also served in state government, including as Executive Director of the Indiana State Lottery Commission and State of Indiana Budget Director. Ms. Blackwell serves as a Director of Celanese Corporation, a global technology and specialty materials company, and Ingevity Corporation, a leading global manufacturer of specialty chemicals and high performance carbon materials. Ms. Blackwell previously served as a Director of Essendant Inc., a leading national wholesale distributor of business products, from 2007 to 2018 and Phoenix Companies Inc., a life insurance company, from 2004 to 2009.

Skills and Qualifications

Extensive experience as a business leader, including serving as the Chief Financial Officer of Cummins Inc. Deep financial acumen as CFO and senior finance leader in engine-related industry. Experience serving on the board of directors of multiple international companies. Significant knowledge of the global marketplace gained from her business experience and background. Extensive experience with ESG topics through service as CEO of Cummins Foundation and Executive Vice President of Corporate Responsibility for Cummins Inc. Experience leading global teams.

Pierre Cohade, Age 58

Director Since: December 2018
Independent: Yes
Committee: Audit
Other Public Directorships:
- CEAT Ltd.
- Acorn International Inc.

Mr. Cohade served as the Chief Executive Officer of Triangle Tyre, China's largest private tire manufacturer from 2015 to 2016. From 2013 to 2015, Mr. Cohade was a Senior Advisor at ChinaVest, Wells Fargo's investment banking affiliate in China. During 2012, he served as an independent consultant for various private equity concerns. Prior thereto he served as the President, Asia Pacific, of The Goodyear Tire & Rubber Company from 2004 to 2011. From 2003 to 2004, Mr. Cohade served as the Division Executive Vice President of the Global Water and Beverage division of Danone SA. From 1985 to 2003, Mr. Cohade served in roles of increasing responsibility at Eastman Kodak Co., ultimately serving as the Chairman of Kodak's Europe, Africa, Middle East and Russia Region. Mr. Cohade serves as a Director of CEAT Ltd. (one of India's leading tire manufacturers), Acorn International Inc., (a leading marketing and branding company in China focused on content creation, distribution, and product sales through digital media), and Deutsche Bank China. Mr. Cohade is currently the Chairman of IMA in China, a leading peer group forum for CEOs and senior executives located in China, and is an independent advisor to companies on China, strategy and operations.

Skills and Qualifications

Extensive experience as a business leader in a number of industries. Experience leading large business units at The Goodyear Tire & Rubber Company, Danone SA, and Eastman Kodak Co. Significant experience in a number of senior global positions, with extensive experience and expertise in China. Deep experience in the consumer products industry. Experience in overseeing manufacturing and operations in China at The Goodyear Tire & Rubber Company and Triangle Tyre. Experience leading global teams.

Michael E. Daniels, Age 65

Director Since: March 2010
Independent: Yes
Committees: Compensation, Executive
Other Public Directorships:
- Thomson Reuters
- SS&C Technologies, Inc.

Prior to his retirement in March 2013, Mr. Daniels was the Senior Vice President and Group Executive of IBM Services, a business and IT services company with operations in more than 160 countries around the world. In this role, Mr. Daniels had worldwide responsibility for IBM's Global Services business operations in outsourcing services, integrated technology services, maintenance, and Global Business Services, the consulting and applications management arm of Global Services. Since he joined IBM in 1976, Mr. Daniels held a number of leadership positions in sales, marketing, and services, and was general manager of several sales and services businesses, including IBM's Sales and Distribution operations in the United States, Canada and Latin America; its Global Services team in the Asia Pacific region; Product Support Services; Availability Services; and Systems Solutions. Mr. Daniels serves as a Director of Thomson Reuters, a provider of intelligent information for businesses, and SS&C Technologies, a provider of specialized software, software enabled-services and software as a service solutions to the financial services industry.

Skills and Qualifications

Decades of senior leadership experience at IBM. Broad and extensive global business experience in a wide range of global roles as an executive at IBM, including decades of experience in the service space. Deep understanding of critical areas of enterprise service functions and information technology, including cyber security. Experience as a senior manager of a global organization as well as international experience living and working in a variety of cultures. Experience leading global teams at IBM and in service on the compensation committee of public companies.

Juan Pablo del Valle Perochena, Age 47

Director Since: September 2016
Independent: Yes
Committees: Governance, Executive
Other Public Directorships:
- Orbia Advance Corporation, S.A.B. de C.V.
- Elementia S.A.B.

Mr. Perochena has been the Chairman of Orbia Advance Corporation, S.A.B. de C.V., a chemical and petrochemical producer and seller and a subsidiary of Kaluz, S.A. de C.V., since April 2011. He became a member of our Board in connection with the merger of Johnson Controls, Inc. and a subsidiary of Tyco International plc in September 2016. He has been a Director of Orbia Advance Corporation, S.A.B. de C.V. since 2001, and serves as a Director of Kaluz, S.A. de C.V., and Elementia S.A. de C.V., a manufacturer and marketer of building materials in the Americas. He is a former Director of Grupo Pochteca S.A.B., a manufacturer and marketer of specialty chemicals and Grupo Lala S.A.B., a dairy products company based in Mexico.

Skills and Qualifications

Significant experience as an executive officer and board member of several Mexican companies. Deep knowledge of the manufacturing industry from his experiences at Orbia Advance Corporation, S.A.B. de C.V. Significant knowledge of the global marketplace gained from his business experience and background. Mr. del Valle Perochena's service with Kaluz, S.A. de C.V. gives him unique insight into the construction industry and real estate development. Experience leading global teams.

W. Roy Dunbar, Age 58

Director Since: June 2017
Independent: Yes
Committee: Compensation
Other Public Directorships:
- Humana, Inc.
- SiteOne Landscape Supplies

Mr. Dunbar was Chairman of the Board of Network Solutions, a technology company and web service provider, and was the Chief Executive Officer from January 2008 until October 2009. Mr. Dunbar also served as the President of Global Technology and Operations for MasterCard Incorporated from September 2004 until January 2008. Prior to MasterCard, Mr. Dunbar worked at Eli Lilly and Company for 14 years, serving as President of Intercontinental Operations, and earlier as Chief Information Officer. He currently serves as a Director of Humana and SiteOne Landscape Supply, Inc. and previously served as a Director of Lexmark International and iGate.

Skills and Qualifications

Extensive experience leading across functional disciplines. Significant experience as a leader and director across US and international markets. Experience in global leadership and service as a director on the compensation committees of multiple companies. Career-spanning depth of experience across numerous disciplines including healthcare, information technology, payments, insurance and renewable energy.

Gretchen R. Haggerty, Age 64

Director Since: March 2018
Independent: Yes
Committee: Audit
Other Public Directorships:
- Teleflex Corporation

Ms. Haggerty retired in August 2013 after a 37-year career with United States Steel Corporation, an integrated global steel producer, and its predecessor, USX Corporation, which, in addition to its steel production, also managed and supervised energy operations, principally through Marathon Oil Corporation. From March 2003 until her retirement, she served as Executive Vice President & Chief Financial Officer and also served as Chairman of the U. S. Steel & Carnegie Pension Fund and its Investment Committee. Earlier, she served in various financial executive positions at U. S. Steel and USX, beginning in November 1991 when she became Vice President & Treasurer. Ms. Haggerty is currently a Director Teleflex Incorporated, a global provider of medical technology products, and is a former Director of USG Corporation, a leading manufacturer of building materials.

Skills and Qualifications

Decades of senior leadership experience at United States Steel Corporation and USX Corporation. Deep financial acumen as CFO and senior finance leader in steel and energy industries. Experience serving on the board of directors of multiple international companies. Significant knowledge of the global marketplace gained from her business experience and background. Experience leading global teams.

Simone Menne, Age 59

Director Since: March 2018
Independent: Yes
Committee: Audit
Other Public Directorships:
- Bayerische Motoren Werke AG
- Deutsche Post DHL Group

Ms. Menne served as Chief Financial Officer at Boehringer Ingelheim GmbH, Germany's second largest pharmaceutical company, from September 2016 to December 2017. She previously served as the Chief Financial Officer at Deutsche Lufthansa AG ("Lufthansa") from January 2016 to August 2016 and as a member of its Executive Board from July 2012 to August 2016. She also served as Chief Officer of Finances and Aviation Services at Lufthansa from July 2012 to January 2016. Prior thereto she served in a number of roles of increasing responsibility at Lufthansa from 1989 to 2012. She currently serves on the Supervisory Boards of Bayerische Motoren Werke AG and Deutsche Post DHL Group. She also serves on the Börsensachverständigenkommission (Exchange Experts Commission, BSK) and on the Supervisory Board of Russell Reynolds Associates, a global search and leadership advisory firm.

Skills and Qualifications

Decades of senior leadership experience at Lufthansa and Boehringer Ingelheim. Experience serving on the supervisory boards of multiple international companies. Deep financial acumen as CFO and senior finance leader in transportation and pharmaceutical industries. Significant knowledge of the global marketplace gained from her business experience and background. Experience leading global teams.

George R. Oliver, Age 59

Director Since: September 2012
Independent: No
Committee: Executive
Other Public Directorships:
- Raytheon Company

Mr. Oliver became our Chairman and Chief Executive Officer in September 2017. He previously served as our President and Chief Operating Officer following the completion of the merger. Prior to that, Mr. Oliver was Tyco's Chief Executive Officer, a position he held since September 2012. He joined Tyco in July 2006, and served as President of a number of operating segments from 2007 through 2011. Before joining Tyco, he served in operational leadership roles of increasing responsibility at several General Electric divisions. Mr. Oliver also serves as a Director on the board of Raytheon Company, a company specializing in cybersecurity and defense throughout the world, is a Trustee of Worcester Polytechnic Institute, his alma mater, and serves on the Pro Football Hall Board of Trustees.

Skills and Qualifications

Extensive leadership experience over several decades as an executive at Tyco (now the Company) and GE. Nearly a decade of experience with Tyco, first as president of several of its business units and then as CEO. Experience as a director, CEO and a senior manager of global organizations. Experience leading global teams at Johnson Controls, Tyco and GE. Mr. Oliver offers valuable insights and perspective on the day to day management of the Company's affairs.

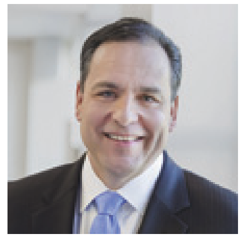
Jürgen Tinggren, Age 61

Director Since: March 2014
Independent: Yes
Committees: Audit, Executive
Other Public Directorships:
- N.V. Bekaert S.A.
- OpenText Corporation

Mr. Tinggren joined our Board in March 2014. He was the Chief Executive Officer of the Schindler Group, a global provider of elevators, escalators and related services, through December 2013 and was a member of the Board of Directors of Schindler from March 2014 to 2016. He joined the Group Executive Committee of Schindler in April 1997, initially with responsibility for Europe and thereafter for the Asia/Pacific region and the Technology and Strategic Procurement. In 2007, he was appointed Chief Executive Officer and President of the Group Executive Committee of the Schindler Group. Mr. Tinggren also serves on the Board of Directors of N.V. Bekaert S.A., a Belgian based supplier of steel cord products for tire reinforcement and other specialty steel wire products, and OpenText Corporation, a Canadian based developer and seller of enterprise information management software. From 2011 to 2014 he was a Director of Schenker-Winkler Holding and from 2014 to 2018 he was a Director of the Sika AG Group.

Skills and Qualifications

Extensive global business experience as the CEO and a senior leader of Schindler. Experience as senior executive and director of European based organizations, deep understanding of international markets. Deep understanding of building services, industrial products and installation and service businesses. Deep financial understanding as CEO of Schindler. Significant experience with mergers and acquisitions. Experience leading global teams as CEO of Schindler.



Mark Vergnano, Age 61

Director Since: September 2016
Independent: Yes
Committee: Compensation
Other Public Directorships:
- The Chemours Company

Mr. Vergnano has been the President, Chief Executive Officer and a director of the Chemours Company, a titanium technologies, fluoroproducts, and chemical solutions producer, since July 2015. He joined our Board in September 2016 upon the completion of the merger with Johnson Controls, Inc. Previously, Mr. Vergnano served as Executive Vice President, E. I. du Pont de Nemours and Company from 2009 to June 2015. While at DuPont, he served as Group Vice President—Safety & Protection from 2006 to 2009, Vice President and General Manager—DuPont Surfaces and Building Innovations from 2005 to 2006, and Vice President and General Manager—DuPont Nonwovens from 2003 to 2005.

Mr. Vergnano joined DuPont in 1980 as a process engineer and held a variety of manufacturing, technical and management assignments in DuPont's global organization. Mr. Vergnano also serves on the Board of Directors for the National Safety Council, and is the Chairman of the American Chemistry Council.

Skills and Qualifications

Extensive global business experience as an executive and CEO of Chemours and DuPont. Experience as senior executive of a multinational company. Deep understanding of the operations, global sales and marketing in the chemical manufacturing industry. Deep financial understanding as CEO of Chemours. Experience leading global teams as CEO of Chemours and in managing a variety of business units at DuPont.

R. David Yost, Age 72

Director Since: March 2009
Independent: Yes
Committee: Governance
Other Public Directorships:
- Marsh & McLennan Companies, Inc.
- Bank of America

Mr. Yost served as Director and Chief Executive Officer of AmerisourceBergen, a comprehensive pharmaceutical services provider, from August 2001 to June 2011 when he retired. He was Chairman and Chief Executive Officer of AmeriSource Health Corporation from May 1997 to August 2001, and President and Chief Executive Officer of AmeriSource from May 1997 to December 2000. Mr. Yost also held a variety of other positions with AmeriSource Health Corporation and its predecessors from 1974 to 1997. Mr. Yost also serves as a Director of Marsh & McLennan Companies, Inc. and Bank of America, and is a member of the Board of the United States Air Force Academy Endowment, and serves on its Executive Committee.

Skills and Qualifications

Extensive leadership experience gained as the CEO and a director of AmerisourceBergen. Significant corporate governance experience serving as a director of multiple public companies. Exposure to complex risk management concepts gained as a director of Marsh & McLennan and Bank of America. Experience leading global teams as CEO of AmerisourceBergen.

John D. Young, Age 55

Director Since: December 2017
Independent: Yes
Committee: Governance
Other Public Directorships:
None

Mr. Young has served as Chief Business Officer of Pfizer Inc. since January 2019. From January 2018 to December 2018, he served as Group President of Pfizer Innovative Health, and from June 2016 to January 2018 he served as Group President, Pfizer Essential Health. He was Group President, Global Established Pharma Business for Pfizer from January 2014 until June 2016 and President and General Manager, Pfizer Primary Care from June 2012 until December 2013. He also served as Pfizer's Primary Care Business Unit's Regional President for Europe and Canada from 2009 until June 2012 and U.K. Country Manager from 2007 until 2009.

Skills and Qualifications

Extensive experience as a business leader with 30 years' experience with Pfizer. Experience leading large business units at Pfizer. Significant experience in a number of senior global positions at Pfizer. Specialized expertise in developing healthcare solutions in a variety of medical disciplines. Experience leading global teams.

Election of each Director requires the affirmative vote of a majority of the votes properly cast by the holders of ordinary shares represented at the Annual General Meeting in person or by proxy. Each Director's election is the subject of a separate resolution and shareholders are entitled to one vote per share for each separate Director election resolution.

The Board unanimously recommends that shareholders vote ***FOR*** the election of each nominee for Director to serve until the completion of the next Annual General Meeting.

PROPOSAL NUMBER TWO

Appointment of Auditors and Authority to Set Remuneration

PricewaterhouseCoopers LLP (“PwC”) served as our independent auditors for the fiscal year ended September 30, 2019. The Audit Committee has selected and appointed PwC to audit our financial statements for the fiscal year ending September 30, 2020. The Board, upon the recommendation of the Audit Committee, is asking our shareholders to ratify the appointment of PwC as our independent auditors for the fiscal year ending September 30, 2020 and to authorize the Audit Committee of the Board of Directors to set the independent auditors’ remuneration. Although approval is not required by our Memorandum and Articles of Association or otherwise, the Board is submitting the selection of PwC to our shareholders for ratification because we value our shareholders’ views on the Company’s independent auditors. If the appointment of PwC is not approved by shareholders, it will be considered as notice to the Board and the Audit Committee to consider the selection of a different firm. Even if the appointment is approved, the Audit Committee, in its discretion, may select a different independent auditor at any time during the year if it determines that such a change would be in the best interests of the Company and our shareholders.

Representatives of PwC will attend the Annual General Meeting and will have an opportunity to make a statement if they wish. They will also be available to answer questions at the meeting.

For independent auditor fee information, information on our pre-approval policy of audit and non-audit services, and the Audit Committee Report, please see below.

The ratification of the appointment of the independent auditors and the authorization for the Audit Committee to set the remuneration for the independent auditors requires the affirmative vote of a majority of the votes properly cast by the holders of ordinary shares represented at the Annual General Meeting in person or by proxy.

The Audit Committee and the Board unanimously recommend a vote ***FOR*** these proposals.

Audit and Non-Audit Fees

Aggregate fees for professional services rendered to the Company by its independent auditors as of and for the two most recent fiscal years are set forth below. The aggregate fees include fees billed or reasonably expected to be billed for the applicable fiscal year. Fees for fiscal year 2019 include fees billed or reasonably expected to be billed by PwC.

	Fiscal Year 2019	Fiscal Year 2018
	(in millions)	(in millions)
Audit Fees	$ 22.8	$ 26.9
Audit-Related Fees	1.1	2.7
Tax Fees	4.8	6.1
All Other Fees	0.1	1.1
Total	$ 28.8	$ 36.8

Audit Fees for the fiscal year ended September 30, 2019 were for professional services rendered by PwC and include fees for services performed to comply with auditing standards of the PCAOB (United States), including the annual audit of our consolidated financial statements including reviews of the interim financial statements contained in Johnson Controls’ Quarterly Reports on Form 10-Q, issuance of consents and the audit of our internal control over financial reporting. This category also includes fees for audits provided in connection with statutory filings or services that generally only the principal auditor reasonably can provide to a client, such as assistance with and review of documents filed with the SEC.

Audit-Related Fees for the fiscal year ended September 30, 2019 were for services rendered by PwC and include fees associated with assurance and related services that are reasonably related to the performance of the audit or review of our financial statements. This category includes fees related to assistance in financial due diligence related to mergers, acquisitions, and divestitures, carve-outs associated with divestitures and spin-off transactions, consultations concerning financial accounting and reporting standards, issuance of comfort letters associated with debt offerings, general assistance with implementation of SEC and Sarbanes-Oxley Act requirements, audits of pension and other employee benefit plans, and audit services not required by statute or regulation.

Tax Fees for the fiscal year ended September 30, 2019 were for services rendered by PwC and primarily include fees associated with tax audits, tax compliance, tax consulting, transfer pricing, and tax planning. This category also includes tax planning on mergers and acquisitions and restructurings, as well as other services related to tax disclosure and filing requirements.

All Other Fees for the fiscal years ended September 30, 2019 were for services rendered by PwC and primarily include fees associated with information technology consulting, training seminars related to accounting, finance and tax matters, and other advisory services.

Policy on Audit Committee Pre-Approval of Audit and Permissible Non-Audit Services of Independent Auditors

In March 2004, the Audit Committee adopted a pre-approval policy that provides guidelines for the audit, audit-related, tax and other permissible non-audit services that may be provided by the independent auditors. The policy identifies the guiding principles that must be considered by the Audit Committee in approving services to ensure that the auditors' independence is not impaired. The policy provides that the Corporate Controller will support the Audit Committee by providing a list of proposed services to the Committee, monitoring the services and fees pre-approved by the Committee, providing periodic reports to the Audit Committee with respect to pre-approved services, and ensuring compliance with the policy.

Under the policy, the Audit Committee annually pre-approves the audit fee and terms of the engagement, as set forth in the engagement letter. This approval includes approval of a specified list of audit, audit-related and tax services. Any service not included in the specified list of services must be submitted to the Audit Committee for pre-approval. No service may extend for more than 12 months, unless the Audit Committee specifically provides for a different period. The independent auditor may not begin work on any engagement without confirmation of Audit Committee pre-approval from the Corporate Controller or his or her delegate.

In accordance with the policy, the chair of the Audit Committee has been delegated the authority by the Committee to pre-approve the engagement of the independent auditors for a specific service when the entire Committee is unable to do so. All such pre-approvals must be reported to the Audit Committee at the next Committee meeting.

Audit Committee Report

The Audit Committee of the Board is composed of four Directors, each of whom the Board has determined meets the independence and experience requirements of the NYSE and the SEC. The Audit Committee operates under a charter approved by the Board, which is posted on our website. As more fully described in its charter, the Audit Committee oversees Johnson Controls' financial reporting process on behalf of the Board. Management has the primary responsibility for the financial statements and the reporting process. Management assures that the Company develops and maintains adequate financial controls and procedures, and monitors compliance with these processes. Johnson Controls' independent auditors are responsible for performing an audit in accordance with auditing standards generally accepted in the United States to obtain reasonable assurance that Johnson Controls' consolidated financial statements are free from material misstatement and expressing an opinion on the conformity of the financial statements with accounting principles generally accepted in the United States. The internal auditors are responsible to the Audit Committee and the Board for testing the integrity of the financial accounting and reporting control systems and such other matters as the Audit Committee and Board determine.

In this context, the Audit Committee has reviewed the U.S. GAAP consolidated financial statements for the fiscal year ended September 30, 2019, and has met and held discussions with management, the internal auditors and the independent auditors concerning these financial statements, as well as the report of management and the report of the independent registered public accounting firm regarding the Company's internal control over financial reporting required by Section 404 of the Sarbanes-Oxley Act. Management represented to the Committee that Johnson Controls' U.S. GAAP consolidated financial statements were prepared in accordance with U.S. GAAP. In addition, the Committee has discussed with the independent auditors the auditors' independence from Johnson Controls and its management as required under Public Company Accounting Oversight Board Rule 3526, Communication with Audit Committees Concerning Independence, and the matters required to be discussed by Public Company Accounting Oversight Board Auditing Standard AU Section 380 (Communication with Audit Committees) and Rule 2-07 of SEC Regulation S-X.

In addition, the Audit Committee has received the written disclosures and the letter from the independent auditor required by applicable requirements of the Public Company Accounting Oversight Board regarding the independent auditor's communications with the Audit Committee concerning independence. Based upon the Committee's review and discussions referred to above, the Committee recommended that the Board include Johnson Controls' audited consolidated financial statements in Johnson Controls' Annual Report on Form 10-K for the fiscal year ended September 30, 2019 filed with the Securities and Exchange Commission and that such report be included in Johnson Controls' annual report to shareholders for the fiscal year ended September 30, 2019.

Submitted by the Audit Committee,
Jürgen Tinggren, Chair
Pierre Cohade
Gretchen R. Haggerty
Simone Menne

PROPOSAL NUMBER THREE

AUTHORIZATION TO MAKE MARKET PURCHASES OF COMPANY SHARES

We have historically used open-market share purchases as a means of returning cash to shareholders and managing the size of our base of outstanding shares. These are longstanding objectives that management believes are important to continue.

Under Irish law, neither the Company nor any subsidiary of the Company may make market purchases or overseas market purchases of the Company's shares without shareholder approval. Accordingly, shareholders are being asked to authorize the Company, or any of its subsidiaries, to make market purchases and overseas market purchases of up to 10% of the Company's issued shares. This authorization expires after eighteen months unless renewed; accordingly, we expect to propose renewal of this authorization at subsequent Annual General Meetings.

Such purchases would be made only at price levels which the Directors considered to be in the best interests of the shareholders generally, after taking into account the Company's overall financial position. The Company currently expects to effect repurchases under our existing share repurchase authorization as redemptions pursuant to Article 3(d) of our Articles of Association. Whether or not this proposed resolution is passed, the Company will retain its ability to effect repurchases as redemptions pursuant to its Articles of Association, although subsidiaries of the Company will not be able to make market purchases or overseas market purchases of the Company's shares unless the resolution is adopted.

In order for the Company or any of its subsidiaries to make overseas market purchases of the Company's ordinary shares, such shares must be purchased on a market recognized for the purposes of the Companies Act 2014. The New York Stock Exchange, on which the Company's ordinary shares are listed, is specified as a recognized stock exchange for this purpose by Irish law. The general authority, if approved by our shareholders, will become effective from the date of passing of the authorizing resolution.

Ordinary Resolution

The text of the resolution in respect of Proposal 3 is as follows:

> RESOLVED, that the Company and any subsidiary of the Company is hereby generally authorized to make market purchases and overseas market purchases of ordinary shares in the Company ("shares") on such terms and conditions and in such manner as the Board of Directors of the Company may determine from time to time but subject to the provisions of the Companies Act 2014 and to the following provisions:
>
> (a) The maximum number of shares authorized to be acquired by the Company and/or any subsidiary of the Company pursuant to this resolution shall not exceed, in the aggregate, 76,382,000 ordinary shares of US$0.01 each (which represents slightly less than 10% of the Company's issued ordinary shares).
>
> (b) The maximum price to be paid for any ordinary share shall be an amount equal to 110% of the closing price on the New York Stock Exchange for the ordinary shares on the trading day preceding the day on which the relevant share is purchased by the Company or the relevant subsidiary of the Company, and the minimum price to be paid for any ordinary share shall be the nominal value of such share.
>
> (c) This general authority will be effective from the date of passing of this resolution and will expire on the earlier of the date of the Annual General Meeting in 2021 or eighteen months from the date of the passing of this resolution, unless previously varied, revoked or renewed by ordinary resolution in accordance with the provisions of section 1074 of the Companies Act 2014. The Company or any such subsidiary may, before such expiry, enter into a contract for the purchase of shares which would or might be executed wholly or partly after such expiry and may complete any such contract as if the authority conferred hereby had not expired.

The authorization for the Company and/or any its subsidiaries to make market purchases and overseas market purchases of Company shares requires the affirmative vote of a majority of the votes properly cast (in person or by proxy) at the Annual General Meeting.

The Board unanimously recommends that shareholders vote ***FOR*** this proposal.

PROPOSAL NUMBER FOUR

Determine the Price Range at which the Company can Re-Allot Treasury Shares

Our historical open-market share repurchases and other share buyback activities result in ordinary shares being acquired and held by the Company as treasury shares. We may re-allot treasury shares that we acquire through our various share buyback activities in connection with our executive compensation program and our other compensation programs.

Under Irish law, our shareholders must authorize the price range at which we may re-allot any shares held in treasury (including by way of re-allotment off-market). In this proposal, that price range is expressed as a minimum and maximum percentage of the prevailing market price (as defined below). Under Irish law, this authorization expires after eighteen months unless renewed; accordingly, we expect to propose the renewal of this authorization at subsequent Annual General Meetings.

The authority being sought from shareholders provides that the minimum and maximum prices at which an ordinary share held in treasury may be re-alloted are 95% and 120%, respectively, of the average closing price per ordinary share of the Company, as reported by the New York Stock Exchange, for the thirty (30) trading days immediately preceding the proposed date of re-allotment, save that the minimum price for a re-allotment to satisfy an obligation under an employee share plan is the par value of a share. Any re-allotment of treasury shares will be at price levels that the Board considers in the best interests of our shareholders.

Special Resolution

The text of the resolution in respect of Proposal 4 (which is proposed as a special resolution) is as follows:

> RESOLVED, that the re-allotment price range at which any treasury shares held by the Company may be re-alloted shall be as follows:
>
> (a) the maximum price at which such treasury share may be re-alloted shall be an amount equal to 120% of the “market price”; and
>
> (b) the minimum price at which a treasury share may be re-alloted shall be the nominal value of the share where such a share is required to satisfy an obligation under an employee share plan operated by the Company or, in all other cases, an amount equal to 95% of the “market price”; and
>
> (c) for the purposes of this resolution, the “market price” shall mean the average closing price per ordinary share of the Company, as reported by the New York Stock Exchange, for the thirty (30) trading days immediately preceding the proposed date of re-allotment.
>
> FURTHER RESOLVED, that this authority to re-allot treasury shares shall expire on the earlier of the date of the Annual General Meeting of the Company held in 2021 or eighteen months after the date of the passing of this resolution unless previously varied or renewed in accordance with the provisions of section 109 and/or 1078 (as applicable) of the Companies Act 2014 (and/or any corresponding provision of any amended or replacement legislation) and is without prejudice or limitation to any other authority of the Company to re-allot treasury shares on-market.

The authorization of the price range at which the Company may re-allot any shares held in treasury requires the affirmative vote of at least 75% of the votes properly cast (in person or by proxy) at the Annual General Meeting.

The Board unanimously recommends that shareholders vote ***FOR*** this proposal.

PROPOSAL NUMBER FIVE

ADVISORY VOTE ON EXECUTIVE COMPENSATION

The Board recognizes that providing shareholders with an advisory vote on executive compensation can produce useful information on investor sentiment with regard to the Company's executive compensation programs. As a result, this proposal provides shareholders with the opportunity to cast an advisory vote on the compensation of our executive management team, as described in the section of this proxy statement entitled ***"Compensation Discussion & Analysis,"*** and endorse or not endorse our fiscal 2019 executive compensation philosophy, programs and policies and the compensation paid to the Named Executive Officers.

The advisory vote on executive compensation is non-binding, meaning that our Board will not be obligated to take any compensation actions or to adjust our executive compensation programs or policies, as a result of the vote. Notwithstanding the advisory nature of the vote, the resolution will be considered passed with the affirmative vote of a majority of the votes properly cast by the holders of ordinary shares represented at the Annual General Meeting in person or by proxy.

Although the vote is non-binding, our Board and the Compensation Committee will review the voting results. To the extent there is a significant negative vote, we would communicate directly with shareholders to better understand the concerns that influenced the vote. The Board and the Compensation Committee would consider constructive feedback obtained through this process in making future decisions about executive compensation programs.

Advisory Non-Binding Resolution

The text of the resolution, which if thought fit, will be passed as an advisory non-binding resolution at the Annual General Meeting, is as follows:

> RESOLVED, that shareholders approve, on an advisory basis, the compensation of the Company's Named Executive Officers, as disclosed in the Compensation Discussion & Analysis section of this proxy statement.

The Board unanimously recommends that shareholders vote ***FOR*** this proposal.

PROPOSAL NUMBER SIX

AUTHORIZATION FOR DIRECTORS TO ALLOT COMPANY SHARES

Under Irish law, directors of an Irish public limited company must have authority from its shareholders to issue any shares, including shares which are part of the company's authorized but unissued share capital. The Company's current authorization, approved by shareholders at our 2019 Annual General Meeting, is to issue up to 33% of the authorized but unissued share capital of the Company, which authorization will expire on March 4, 2020 — the date of the 2020 Annual General Meeting. We are presenting this proposal to renew the Board's authority to issue authorized but unissued shares on the terms set forth below. If this proposal is not passed, the Company will have a limited ability to issue new ordinary shares.

It is customary practice in Ireland to seek shareholder authority to issue shares up to an aggregate nominal value of up to 33% of the aggregate nominal value of the company's issued share capital and for such authority to be renewed each year. Therefore, in accordance with customary practice in Ireland, we are seeking approval to issue up to a maximum of 33% of our issued ordinary capital for a period expiring on the earlier of the date of the Company's Annual General Meeting in 2021 or September 4, 2021, unless otherwise varied, revoked or renewed. The Directors of the Company expect to propose renewal of this authorization at subsequent Annual General Meetings.

Granting the Board this authority is a routine matter for public companies incorporated in Ireland and is consistent with Irish market practice. This authority is fundamental to our business and enables us to issue shares, including, if applicable, in connection with funding acquisitions and raising capital. We are not asking you to approve an increase in our authorized share capital or to approve a specific issuance of shares. Instead, approval of this proposal will only grant the Board the authority to issue shares that are already authorized under our Articles of Association upon the terms below. In addition, because we are a NYSE-listed company, our shareholders continue to benefit from the protections afforded to them under the rules and regulations of the NYSE and SEC, including those rules that limit our ability to issue shares in specified circumstances. This authorization is required as a matter of Irish law and is not otherwise required for other companies listed on the NYSE with whom we compete. Accordingly, approval of this resolution would merely place us on par with other NYSE-listed companies.

Ordinary Resolution

The text of the resolution in respect of Proposal 6 (which is proposed as an ordinary resolution) is as follows:

> "**RESOLVED** that the directors be and are hereby generally and unconditionally authorized to exercise all powers to allot and issue relevant securities (within the meaning of section 1021 of the Companies Act 2014) up to an aggregate nominal value of US $2,520,000 (being equivalent to approximately 33% of the aggregate nominal value of the issued share capital of the Company as at the last practicable date prior to the issue of the notice of this meeting) and the authority conferred by this resolution shall expire on the earlier of the date of the Company's Annual General Meeting in 2021 or September 4, 2021, unless previously renewed, varied or revoked; provided that the Company may make an offer or agreement before the expiry of this authority, which would or might require any such securities to be allotted after this authority has expired, and in that case, the directors may allot relevant securities in pursuance of any such offer or agreement as if the authority conferred hereby had not expired."
>
> As required under Irish law, the resolution in respect of this proposal is an ordinary resolution that requires the affirmative vote of a majority of the votes properly cast (in person or by proxy) at the Annual General Meeting.

The Board unanimously recommends that shareholders vote ***FOR*** this proposal.

PROPOSAL NUMBER SEVEN
Waiver of Statutory Pre-Emption Rights

Under Irish law, unless otherwise authorized, when an Irish public limited company issues shares for cash to new shareholders, it is required first to offer those shares on the same or more favorable terms to existing shareholders of the company on a pro-rata basis (commonly referred to as the pre-emption right). Our current authorization, approved by shareholders at our 2019 Annual General Meeting, will expire on March 4, 2020, the date of the 2020 Annual General Meeting. We are therefore proposing to renew the Board's authority to opt-out of the pre-emption right on the terms set forth below.

It is customary practice in Ireland to seek shareholder authority to opt-out of the pre-emption rights provision in the event of the issuance of shares for cash, if the issuance is limited to up to 5% of a company's issued ordinary share capital. It is also customary practice for such authority to be renewed on an annual basis.

Therefore, in accordance with customary practice in Ireland, we are seeking this authority, pursuant to a special resolution, to authorize the directors to issue shares for cash up to a maximum of approximately 5% of the Company's authorized share capital without applying statutory pre-emption rights for a period expiring on the earlier of the Annual General Meeting in 2021 or September 4, 2021, unless otherwise varied, renewed or revoked. We expect to propose renewal of this authorization at subsequent Annual General Meetings.

Granting the Board this authority is a routine matter for public companies incorporated in Ireland and is consistent with Irish customary practice. Similar to the authorization sought for Proposal 6, this authority is fundamental to our business and, if applicable, will facilitate our ability to fund acquisitions and otherwise raise capital. We are not asking you to approve an increase in our authorized share capital. Instead, approval of this proposal will only grant the Board the authority to issue shares in the manner already permitted under our Articles of Association upon the terms below. Without this authorization, in each case where we issue shares for cash, we would first have to offer those shares on the same or more favorable terms to all of our existing shareholders. This requirement could cause delays in the completion of acquisitions and capital raising for our business. This authorization is required as a matter of Irish law and is not otherwise required for other companies listed on the NYSE with whom we compete. Accordingly, approval of this resolution would merely place us on par with other NYSE-listed companies.

Special Resolution

The text of the resolution in respect of Proposal 7 (which is proposed as a special resolution) is as follows:

> "**RESOLVED** that the directors be and are hereby empowered pursuant to section 1023 of the Companies Act 2014 to allot equity securities (as defined in section 1023 of that Act) for cash, pursuant to the authority conferred by proposal 6 of the notice of this meeting as if sub-section (1) of section 1022 of that Act did not apply to any such allotment, provided that this power shall be limited to the allotment of equity securities up to an aggregate nominal value of US $381,000 (being equivalent to approximately 5% of the aggregate nominal value of the issued share capital of the Company as at the last practicable date prior to the issue of the notice of this meeting) and the authority conferred by this resolution shall expire on the earlier of the Company's Annual General Meeting in 2021 or September 4, 2021, unless previously renewed, varied or revoked; provided that the Company may make an offer or agreement before the expiry of this authority, which would or might require any such securities to be allotted after this authority has expired, and in that case, the directors may allot equity securities in pursuance of any such offer or agreement as if the authority conferred hereby had not expired."

As required under Irish law, the resolution in respect of Proposal 7 is a special resolution that requires the affirmative vote of at least 75% of the votes cast. In addition, under Irish law, the Board may only be authorized to opt-out of pre-emption rights if it is authorized to issue shares, which authority is being sought in Proposal 6.

The Board unanimously recommends that shareholders vote ***FOR*** this proposal.

Governance of the Company

Vision and Values of Our Board

Our vision is a safe, comfortable and sustainable world. In addition to achieving financial performance objectives, our Board and management believe that we must assume a leadership position in the area of corporate governance to fulfill our vision. Our Board believes that good governance requires not only an effective set of specific practices but also a culture of responsibility throughout the company, and governance at Johnson Controls is intended to optimize both. Johnson Controls also believes that good governance ultimately depends on the quality of its leadership, and it is committed to recruiting and retaining Directors and officers of proven leadership ability and personal integrity. Our Board has adopted *Corporate Governance Guidelines* which provide a framework for the effective governance of Johnson Controls.

Johnson Controls' Values: How We Seek to Conduct Ourselves

Integrity First

We promise honesty and transparency. We uphold the highest standards of integrity and honor the commitments we make

Purpose Led

We believe in doing well by doing good and hold ourselves accountable to make the world a better place through the solutions we provide, our engagement in society, the way we do business, and our commitment to protect people and the environment

Customer Driven

We win when our customers win. Our long-term strategic relationships provide unique insights and the ability to deliver exceptional customer experiences and solutions

Future Focused

Our culture of innovation and continuous improvement drives us to solve today's challenges while constantly asking 'what's next'

One Team

We are one team, dedicated to working collaboratively together to create the purposeful solutions that propel the world forward

Purpose Led Board Engagement

The Board is keenly aware of the growing importance to many investors of a company's Sustainability and Corporate Responsibility performance and initiatives. Each quarter, the Board, through the Governance Committee, reviews the Company's progress in this area, including key safety metrics, the implementation of new policies, such as the Company's Distracted Driver policy, the status of environmental compliance efforts, and progress against the Company's sustainability goals which include reduction in greenhouse gas emissions, energy and water usage, waste elimination and level of spend with diverse suppliers. The Governance Committee also tracks commitments made with key organizations, such as those Johnson Controls made at the 2019 UN Climate Action Summit. For additional information on this topic, please see Sustainability at page 30.

Customer Driven Board Engagement

In 2019, members of the Board visited a major healthcare customer experiencing significant growth. The Directors toured one of the customer's hospitals to observe the Company's HVAC products, fire and security systems, building management solutions and its employees in action. They also met with the customer's senior management and facilities personnel to better understand how Johnson Controls can bring value to customers by providing holistic building solutions. They learned how the Company's buildings management solutions reduce costs, improve the quality of clinical operations and support improvement in key operating metrics. The visit underscored the importance of close collaboration with the customer to identify specific customer needs and develop end-to-end solutions to meet those needs. As a result of the visit, the Directors gained a deeper understanding of how strong customer relationships drive value for both the Company and the customer as well as how the Company's products and services operate in a mission critical environment to fulfill its vision of a safe, comfortable and sustainable world.

Board Mission/Responsibilities

The mission of the Board is to promote the long-term value and health of Johnson Controls in the interests of the Shareholders and set an ethical "tone at the top." All corporate authority is exercised by the Board except for those matters reserved to the shareholders. The Board has retained oversight authority — defining and overseeing the implementation of and compliance with standards of accountability and monitoring the effectiveness of management policies and decisions in an effort to ensure that the Company is managed in such a way to achieve its objectives. The Board delegates its authority to management for managing the everyday affairs of the Company. The Board requires that senior management review major actions and initiatives with the Board prior to implementation. Management, not the Board, is responsible for managing the Company.

Board Leadership

The Board's leadership structure generally includes a combined Chairman and CEO role with a strong, independent non-executive lead director. The Board believes our overall corporate governance measures help ensure that strong, independent directors continue to effectively oversee our management and key issues related to strategy, risk and integrity; executive compensation; CEO evaluation; and succession planning. In choosing generally to combine the roles of Chairman and CEO, the Board takes into consideration the importance of in-depth, industry-specific knowledge and a thorough understanding of our business environment and risk management practices in setting agendas and leading the Board's discussions. Combining the roles also provides a clear leadership structure for the management team and serves as a vital link between management and the Board. This allows the Board to perform its oversight role with the benefit of management's perspective on our business strategy and all other aspects of the business. Our Board periodically reviews its determination to have a single individual act both as Chairman and CEO.

Currently, the Board operates with a designated Lead Director with a well-defined role. The Lead Director, currently Mr. Jürgen Tinggren, acts as an intermediary between the Board and senior management. Among other things, the Lead Director's duties include:

- Working with Mr. Oliver to develop and approve Board agendas and meeting schedules
- Developing agendas for and chairing executive sessions of independent Directors
- Serving as principal liaison between the independent Directors and Mr. Oliver on sensitive issues
- Advising Mr. Oliver on the content of the information sent to the Board
- Being reasonably available for direct communication with the Company's major stockholders

Mr. Tinggren is highly engaged and is routinely in direct contact with members of senior management, including the Chief Financial Officer, the General Counsel, the Corporate Controller, the Corporate Secretary, the Chief Compliance Officer, the head of Corporate Development and the head of Internal Audit, among others. He also has routine discussions with the Company's independent auditors. Mr. Tinggren's level of engagement allows him to have a continuous impact on the Company's strategic and operational initiatives.

Along with the CEO, the Lead Director also hosts Board update calls on a monthly basis in the periods between Board meetings to keep the Directors current on important developments in the business as well as the status of key strategic and operational initiatives. These update calls provide Directors with the opportunity to stay current on matters impacting the Company, which facilitates more efficient and robust discussions at the regularly scheduled Board meetings.

Areas of Focus for the Board

Strategy and Operations

Ensuring that processes are in place designed to maintain the integrity and ethical conduct of the Company; reviewing and approving strategic plans and profit plans; reviewing corporate performance and staying apprised of relations with shareholders

Governance and Risk Management

Overseeing and evaluating management's systems and processes for the identification, assessment, management, mitigation, and reporting of major risks; establishing corporate governance standards

Talent and Succession Planning

Overseeing and evaluating management's systems and senior management performance and compensation; and providing advice and counsel to senior management and plan for effective succession

Board Composition and Effectiveness

Recommending candidates to the shareholders for election to the Board; setting standards for Director qualification, orientation and continuing education; reviewing and assessing the Board's leadership structure; and undertaking an annual performance evaluation regarding the effectiveness of the Board

Board Oversight of Strategy

One of the Board's primary responsibilities is overseeing management's establishment and execution of the Company's strategy and the associated risks. The full Board oversees strategy and strategic risk through robust and constructive engagement with management, taking into consideration our key priorities, global trends impacting our business, regulatory developments, and disruptors in our businesses. The Board's oversight of our strategy primarily occurs through deep-dive annual reviews of the long-term strategic plans of each of our businesses. During these reviews, management provides the Board with its view of the key commercial and strategic risks faced by each business or region, and the Board provides management with feedback on whether management has identified the key risks and is taking appropriate actions to mitigate risk. In addition to the annual deep-dive strategic review, because the Company's strategic initiatives are subject to rapidly evolving business dynamics, the Board regularly reviews key strategic initiatives throughout the year to ensure progress is being made against goals, understand where adjustments or refinements to strategy may be appropriate, and stay current on issues impacting the business.

The Board's oversight of strategy was prominent during the portfolio review process that ultimately led to the sale of the Power Solutions business. With the ultimate goal of achieving an outcome that would promote long-term shareowner value, the Board engaged in a rigorous, thorough, and unbiased review of our Power Solutions business and its fit within the Company's long-term strategic vision, devoting a substantial amount of time and resources to reviewing and probing the financial and strategic analyses prepared by management and external advisors.

Johnson Controls has a clear vision and growth agenda. The visions and values described above are designed to achieve our mission of ***helping our customers win everywhere, every day*** through a relentless focus on customer needs, developing and deploying leading products and technology, distributing our products and services through accessible channels, and attracting and retaining top talent. Johnson Controls plans to achieve these objectives through:

- ***Creating Growth Platforms*** by developing sales excellence through building intimate customer relationships to understand customer needs and how to solve them; driving innovation to translate customer problems into business opportunities; developing advantaged solutions and enhanced business models; making it easy for customers to do business with Johnson Controls; and building an acquisition pipeline.
- ***Driving Operational Improvements*** by standardizing processes and improving cost and service; being best-in-class in G&A effectiveness and efficiency; leveraging IT to increase efficiency and effectiveness; enhancing manufacturing efficiency at all levels; and improving service and installation productivity, and optimizing field infrastructure.
- ***Building a Performance Culture*** by establishing a transparent, data-driven performance culture; aligning strategy, structure, people and processes to create One Team; investing in all talent, focusing on skill building and professional development, and diversity and inclusion; and driving a global commitment to wellness and sustainability.

Through these efforts we plan to substantially improve organizational health while creating greater shareholder value and generating 100%+ long-term free cash flow conversion.

Board Oversight of Talent and Succession Planning

Our Board oversees management succession planning and talent development. The Compensation Committee regularly reviews and discusses with management the CEO succession plan and the succession plans for key positions at the senior officer level across the Company. The Compensation Committee reviews potential internal senior management candidates with our CEO and the Executive Vice President of Human Resources, including the qualifications, experience, and development priorities for these individuals. The full Board generally discusses succession and/or talent management at each one of its regularly scheduled meetings. These discussions are led by the CEO and the Executive Vice President of Human Resources, with periodic assistance from firms with talent assessment expertise. These discussions include critical leadership competencies, talent assessment, short and long-term development potential of executives, the pool of external talent, and diversity. The Board also evaluates succession and development plans in the context of our overall business strategy and culture. Potential leaders are visible to Board members through formal presentations and informal events to allow Directors to personally assess candidates. In 2019, we followed this process when implementing succession plans for certain recent executive officer changes.

Our Board also establishes steps to address emergency CEO succession planning in extraordinary circumstances. Our emergency CEO succession planning is intended to enable our Company to respond to unexpected emergencies and minimize potential disruption or loss of continuity to our Company's business and operations.

Board Oversight of Risk

The Board's role in risk oversight at Johnson Controls is consistent with Johnson Controls' leadership structure, with management having day-to-day responsibility for assessing and managing Johnson Controls' risk exposure and the Board and its committees providing oversight in connection with those efforts, with particular focus on the most significant risks facing Johnson Controls. The Board performs its risk oversight role in several ways. Board meetings regularly include strategic overviews by the CEO that describe the most significant issues, including risks, affecting Johnson Controls. In addition, the Board is regularly provided with business updates from the leaders of Johnson Controls' business units, and updates from the General Counsel and other functional leaders. The Board reviews the risks associated with Johnson Controls' financial forecasts, business plan and operations. These risks are identified and managed in connection with Johnson Controls' robust enterprise risk management ("ERM") process. The Company's ERM process provides the enterprise with a common framework and terminology to ensure consistency in identification, reporting and management of key risks. It is also informs the strategic planning process, and includes a formal process to identify and document the key risks to Johnson Controls perceived by a variety of stakeholders in the enterprise. The results of the ERM process are presented to the Board at least annually.

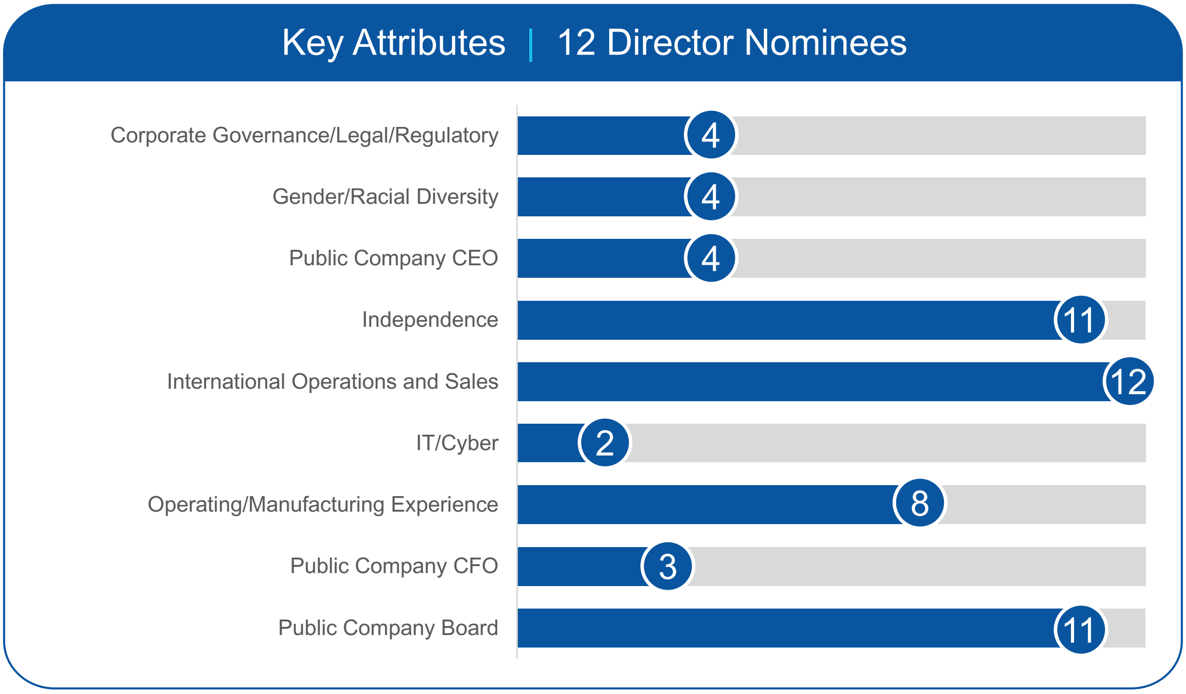
The Board has delegated to each of its committees responsibility for the oversight of specific risks that fall within the committee's areas of responsibility. For example:

Audit Committee	Compensation Committee	Governance Committee
Reviews and discusses with management the Company's major financial reporting, tax, accounting, internal controls, information technology and compliance risk exposures and the steps management has taken to monitor and control such exposures.	Reviews and discusses with management the extent to which the Company's compensation policies and practices create or mitigate risks for the Company and is involved in management succession planning.	Reviews and discusses with management the implementation and effectiveness of the Company's corporate governance policies and EHS programs and oversees the Company's ERM process and cybersecurity efforts.

Board Composition and Effectiveness

The Johnson Controls Board as a whole is strong in its diversity, vision, strategy and business judgment. It possesses a robust collective knowledge of management and leadership, business operations, crisis management, risk assessment, industry knowledge, accounting and finance, corporate governance and global markets.

The culture of the Board is such that it can operate swiftly and effectively in making key decisions and facing major challenges. Board meetings are conducted in an environment of trust, open dialogue and mutual respect that encourages constructive commentary. The Board strives to be informed, proactive and vigilant in its oversight of Johnson Controls and protection of shareholder assets. Below is a summary of the key attributes of our Directors:



Director Orientation

All new Directors participate in our director orientation program during the first few months on our Board. New Directors receive an extensive suite of onboarding materials covering director responsibilities, corporate governance practices and policies, business strategies, leadership structure, and long-term plans. They then participate in a series of meetings with management representatives from our business and functional areas to review and discuss information about the Company's strategic plans, financial statements, and key issues, policies, and practices. Based on feedback from our Directors, we believe this onboarding approach provides new directors with a strong foundation for understanding our businesses, connects Directors with members of management with whom they will interact, and accelerates their effectiveness to engage fully in Board deliberations.

Director Education

Our Board believes that director education is key to the ability of directors to fulfill their roles and supports Board members in their continuous learning. Directors may enroll in continuing education programs at our expense on corporate governance and critical issues associated with a Director's service. Our Board also hears regularly from management on numerous subjects, including investor relations, cash management, regulatory developments, data privacy, and cybersecurity. In addition, the Board periodically participates in site visits to our facilities. For example, in 2019:

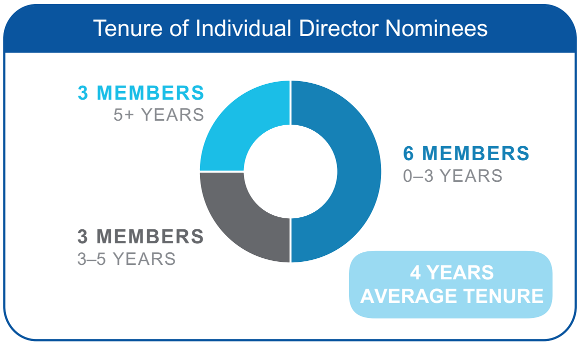
- Board members visited our Norman, Oklahoma Rooftop Center of Excellence where they received a review on the rapidly changing technology in each of our Buildings businesses;
- Board members visited the Building Solutions North America (BSNA) local office in Houston, Texas to gain a deeper understanding of how the Company interacts with its customers in the field. Board members also visited a significant customer in the Houston area to observe how the Company's products and services can improve efficiency, safety and security for our customers.
- In addition to the above visits, from time to time individual Directors will visit company facilities across the globe. In 2019, several directors visited a number of our facilities in China.

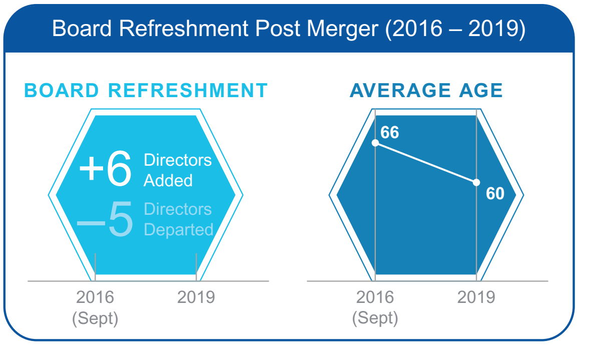
Shareholder Engagement

In 2019, we continued our focus on regularly engaging with our shareholders. The Company reached out to holders of over 66% of our shares outstanding, and engaged with governance professionals and/or portfolio managers at investors holding 41% of our shares outstanding. During these discussions, we discussed many topics, including our executive compensation program, strategic focus as well as our corporate responsibility and sustainability efforts. Investors generally acknowledged that significant progress had been made over the past few years with respect to the Company's compensation practices and expressed general support for the Company's leadership and strategic direction. Further, investors highlighted the importance of engaging with them in the future on long-term corporate strategy and sustainability initiatives.

These discussions provide our Board with valuable insights into our shareholders' views. We plan to continue to actively engage with our shareholders on a regular basis to better understand and consider their views.

Board Tenure and Refreshment





Board Committees

To conduct its business the Board maintains three standing committees: Audit, Compensation and Governance, and each of these NYSE required committees are entirely composed of independent Directors. The Board also maintains an Executive Committee comprised of the Chairman, Lead Director and each committee chair that meets to review matters as delegated to it by the Board. All committees report on their activities to the Board.

The Lead Director may also convene "special committees" to review discrete matters that require the consideration of a Board committee, but do not fit within the mandate of any of the standing committees. Special committees report their activities to the Board.

To ensure effective discussion and decision making while at the same time having a sufficient number of independent Directors for its three standing committees, the Board is normally constituted of between ten and thirteen Directors. The minimum and maximum number of Directors is set forth in Johnson Controls' Articles of Association.

The Governance Committee reviews the Board's governance guidelines annually and recommends appropriate changes to the Board.

Board Meetings

The Board meets at least four times annually, and additional meetings may be called in accordance with our Articles of Association. Frequent board meetings are critical not only for timely decisions but also for Directors to be well informed about Johnson Controls' operations and issues. One of these meetings will be scheduled in conjunction with the Annual General Meeting of shareholders and Board members are required to be in attendance at such meeting either in person or by telephone. The Lead Director and the Chair of the Board are responsible for setting meeting agendas with input from the other Directors.

Committee meetings are normally held in conjunction with Board meetings. Major committee decisions are reviewed and approved by the Board. The Board Chair and committee chairs are responsible for conducting meetings and informal consultations in a fashion that encourages informed, meaningful and probing deliberations. Presentations at Board meetings are concise and focused, and they include adequate time for discussion and decision-making. An executive session of independent Directors, chaired by the Lead Director, is held at least annually, and in practice at most Board meetings. Mr. Tinggren ensures that the executive sessions are highly interactive and include robust discussions on the Company's strategic and operational initiatives and related risks. They also include in-depth discussions on matters such as executive performance and succession planning. These discussions are key to informing the Board's oversight role and appropriately challenging management.

Directors receive the agenda and materials for regularly scheduled meetings in advance. Best efforts are made to make materials available as soon as one week in advance, but no later than three days in advance. When practical, the same applies to special meetings of the Board. Directors may ask for additional information from, or meetings with, senior managers at any time.

Strategic planning and succession planning sessions are held at least annually at a regular Board meeting, but such sessions often occur more frequently. Succession planning meetings focus on the development and succession of not only the CEO but also the other senior executives.

The Board's intent is for Directors to attend all regularly scheduled Board and committee meetings. Directors are expected to use their best efforts to attend regularly scheduled Board and committee meetings in person. All independent Board members are welcome to attend any committee meeting.

The Board also participates in monthly update calls in the periods between Board meetings to keep the Directors current on important developments impacting the Company as well as the status of key strategic and operational initiatives.

The Board also makes periodic visits to our facilities to learn more about our products and customers. For example, in 2019 members of the Board visited our Norman, Oklahoma manufacturing facility and testing lab to gain a deeper understanding of how technology is developed and integrated into our HVAC products. The Board also visited one of our field offices in Houston, Texas to learn how we bring our products to market and serve our customers' needs. The visit also included a tour of a major healthcare customer to observe how our HVAC products, fire and security systems, building management solutions and employees operate in a mission critical environment.

Board and Committee Calendars

A calendar of agenda items for the regularly scheduled Board meetings and all regularly scheduled committee meetings is prepared annually by the Chair of the Board in consultation with the Lead Director, committee chairs, and all interested Directors.

Board Communication

Management speaks on behalf of Johnson Controls, and the Board normally communicates through management with outside parties, including shareholders, business journalists, analysts, rating agencies and government regulators. In certain circumstances Directors may also meet with shareholders to discuss specific governance topics. The Board has established a process for interested parties to communicate with members of the Board, including the Lead Director. If you have any concern, question or complaint regarding our compliance with any policy or law, or would otherwise like to contact the Board, you can reach the Johnson Controls Board of Directors via email at *jciboard@jci.com*. Depending upon the nature of the communication and to whom it is directed, the Secretary will: (a) forward the communication to the appropriate director or directors; (b) forward the communication to the relevant department within the Company; or (c) attempt to handle the matter directly (for example, a communication dealing with a share ownership matter). Shareholders, customers, vendors, suppliers and employees can also raise concerns at *www.johnsoncontrolsintegrityhelpline.com*. Inquiries can be submitted anonymously and confidentially.

All inquiries are received and reviewed by the Integrity Helpline manager, who is part of the Compliance function. A report summarizing all items received resulting in cases is prepared for the Audit Committee of the Board. The Integrity Helpline manager directs cases to the applicable department (such as customer service, human resources, or in the case of accounting or control issues, forensic audit) and follows up with the assigned case owner to ensure that the cases are responded to in a timely manner. The Board also reviews non-trivial shareholder communications received by management through the Corporate Secretary's Office or Investor Relations.

Board and Committee Evaluation Process

Board and Committee Evaluation Process

The Governance Committee leads an annual performance evaluation of the Board and each Board committee as described below.

SEPTEMBER-OCTOBER

Each Director completes a Board self-evaluation questionnaire and a separate questionnaire for each committee on which the director serves. The Board-specific questionnaire requests ratings and solicits detailed suggestions for improving Board and committee governance processes and effectiveness. The committee-specific questionnaires are tailored to the respective committees' roles and responsibilities.

OCTOBER-NOVEMBER

Self-evaluation questionnaire results are compiled and summarized by the Office of the Corporate Secretary. The summaries include all specific Director comments, without attribution. Each Director receives the Board self-evaluation summary and the self-evaluation summary for each committee on which the Director serves. The Lead Director and the Chair of the Governance Committee receive all of the self-evaluation summaries and informally consult with each of the Directors.

DECEMBER

Committee self-evaluation results are discussed by each committee, and Board self-evaluation results are discussed by the full Board. Each committee and the Board identify areas for further consideration and opportunities for improvement, and implement plans to address those matters. The qualifications and performance of all Board members are reviewed in connection with their re-nomination to the Board.

ONGOING

Directors may discuss concerns, including those related to individual performance separately with the Lead Director.

The Board views self-evaluation of Board and committee performance as an integral part of its commitment to continuous improvement. The Governance Committee annually reviews the evaluation process and considers ways to augment it.

Board Advisors

The Board and its committees (consistent with the provisions of their respective charters) may retain their own advisors, at the expense of Johnson Controls, as they deem necessary in order to carry out their responsibilities.

Board Compensation and Share Ownership

The Governance Committee periodically reviews the Directors' compensation and recommends changes in the level and mix of compensation to the full Board. See the Compensation Discussion and Analysis for a detailed discussion of the Compensation Committee's role in determining executive compensation.

To help align Board and shareholder interests, Directors are encouraged to own Johnson Controls ordinary shares or their equivalent, with the guideline set at five times the annual cash retainer. Directors are expected to attain this minimum stock ownership guideline within five years of joining the Board. Once a Director satisfies the minimum stock ownership recommendation, the Director will remain qualified, regardless of market fluctuations, under the guideline as long as the Director does not sell any stock. Mr. Oliver receives no additional compensation for service as a Director.

Director Independence

To maintain its objective oversight of management, the Board consists of a substantial majority of independent Directors. Our Board annually determines the independence of each Director and nominee for election as a Director based on a review of the information provided by the Directors and the executive officers, and a survey by our legal and finance departments. The Board makes these determinations under the *NYSE Listed Company Manual's* independence standards and our *Corporate Governance Guidelines*, which are more restrictive than the NYSE independence standards. Independent Directors:

- are not former officers or employees of the Johnson Controls or its subsidiaries or affiliates, nor have they served in that capacity within the last five years;
- have no current or prior material relationships with Johnson Controls aside from their directorship that could affect their judgment;
- have not worked for, nor have any immediate family members that have worked for, been retained by, or received anything of substantial value from Johnson Controls aside from his or her compensation as a Director;
- have no immediate family member who is an officer of Johnson Controls or its subsidiaries or has any current or past material relationship with Johnson Controls;
- do not work for, nor does any immediate family member work for, consult with, or otherwise provide services to, another publicly traded company on whose board of directors Johnson Controls' CEO or other senior executive serves;
- do not serve as, nor does any immediate family member serve as, an executive officer of any entity with respect to which Johnson Controls' annual sales to, or purchases from, exceed the greater of two percent of either entity's annual revenues for the prior fiscal year or $1,000,000.
- do not serve, nor does any immediate family member serve, on either the board of directors or the compensation committee of any corporation that employs either a nominee for director or a member of the immediate family of any nominee for director; and
- do not serve, nor does any immediate family member serve, as a director, trustee, executive officer or similar position of a charitable or non-profit organization with respect to which the company or its subsidiaries made charitable contributions or payments in excess of the greater of $1,000,000 or two percent of such organization's charitable receipts in the last fiscal year.

Directors meet stringent definitions of independence and for those Directors that meet this definition, the Board will make an affirmative determination that a Director is independent. The Board has determined that all of the Director nominees, with the exception of Mr. Oliver meet these standards and are therefore independent of the Company.

Director Service

Directors are elected by an affirmative vote of an absolute majority of the votes represented (in person or by proxy) by shareholders at the Annual General Meeting. They are elected to serve for one-year terms (except in instances where a director is elected during a special meeting), ending after completion of the next succeeding Annual General Meeting. If a Director resigns or otherwise terminates his or her directorship prior to the next Annual General Meeting, the Board may appoint an interim Director until the next Annual General Meeting. Any nominee for Director who does not receive an affirmative vote of an absolute majority of votes represented (in person or by proxy) by shareholders at the Annual General Meeting is not elected to the Board.

Each Director is required to tender their resignation from the Board at the Annual General Meeting following his or her 75th birthday. The Board may, in its discretion, waive this limit in special circumstances. The rotation of committee chairs and members is considered on an annual basis to ensure diversity of Board member experience and variety of perspectives across the committees, but there is no strict committee chair rotation policy. Any changes in committee chair or member assignments are made based on committee needs, Director interests, experience and availability, and applicable regulatory and legal considerations. Moreover, the value of rotation is weighed carefully against the benefit of committee continuity and experience.

Directors are also expected to inform the Governance Committee of any significant change in their employment or professional responsibilities and are required to offer their resignation to the Board in the event of such a change. This allows for discussion with the Governance Committee to determine if it is in the mutual interest of both parties for the Director to continue on the Board.

The Governance Committee is responsible for the review of all Directors, and where necessary will take action to recommend to shareholders the removal of a Director for performance, which requires the affirmative vote of a majority of the votes represented (in person or by proxy) at a duly called shareholder meeting.

Nomination of Directors and Board Diversity

The Governance Committee, in accordance with the Board's governance principles, seeks to create a Board that as a whole is strong in its collective knowledge and has a diversity of skills and experience with respect to vision and strategy, management and leadership, business operations, business judgment, crisis management, risk assessment, industry knowledge, accounting and finance, corporate governance and global markets. Although the Johnson Controls Board does not have a specific policy regarding diversity, the Board takes into account the current composition and diversity of the Board (including diversity with respect to race, gender and ethnicity) and the extent to which a candidate's particular expertise and experience will complement the expertise and experience of other Directors. The Governance Committee also considers the Board's overall composition when considering a potential new candidate, including whether the Board has an appropriate combination of professional experience, skills, exposure to international markets, knowledge and variety of viewpoints and backgrounds in light of Johnson Controls' current and expected future needs. In addition, the Governance Committee believes that it is desirable for new candidates to contribute to a variety of viewpoints on the Board, which may be enhanced by a mix of different professional and personal backgrounds and experiences. The Governance Committee periodically reviews these criteria and qualifications to determine any need to revise such criteria and qualifications based upon corporate governance best practices and Johnson Controls' needs at the time of the review.

General criteria for the nomination of Director candidates include:

- The highest ethical standards and integrity
- A willingness to act on and be accountable for Board decisions
- An ability to provide wise, informed and thoughtful counsel to top management on a range of issues
- Diversity of expertise and experience as well as diversity with respect to race, gender and ethnicity
- A history of achievement that reflects superior standards for themselves and others
- Loyalty and commitment to driving the success of the Company
- An ability to take tough positions while at the same time working as a team player
- Individual backgrounds that provide a portfolio of experience and knowledge commensurate with the Company's needs

The Company also strives to have all non-employee Directors be independent. In addition to having such Directors meet the NYSE definition of independence, the Board has set its own more rigorous standard of independence. The Governance Committee must also ensure that the members of the Board as a group maintain the requisite qualifications under NYSE listing standards for populating the Audit, Compensation and Governance Committees. In addition, the Governance Committee ensures that each member of the Compensation Committee is a "Non-Employee" Director as defined in the Securities Exchange Act of 1934 and is an "outside director" as defined in section 162(m) of the U.S. Code.

As provided in its charter, the Governance Committee will consider Director candidates recommended by shareholders. To recommend a Director candidate, a shareholder should write to Johnson Controls' Secretary at Johnson Controls' current registered address: One Albert Quay, Cork, Ireland. Such recommendation must include:

Shareholder-recommended Director candidate nominations must include:

- The name and address of the candidate
- A brief biographical description, including his or her occupation for at least the last five years, and a statement of the qualifications of the candidate, taking into account the qualification requirements set forth above
- The candidate's signed consent to serve as a Director if elected and to be named in the proxy statement
- Evidence of share ownership of the person making the recommendation
- All information required by Article 62 of our Memorandum and Articles of Association to be included in notices for any nomination by a shareholder of an individual for election to the Board

The recommendation must also follow the procedures set forth in Articles 54 — 68 of our Memorandum and Articles of Association to be considered timely and complete in order to be considered for nomination to the Board.

To be considered by the Governance Committee for nomination and inclusion in the Company's proxy statement for the 2021 Annual General Meeting, shareholder recommendations for Director must be received by Johnson Controls' Corporate

Secretary no later than September 19, 2020. Once the Company receives the recommendation, the Company may deliver a questionnaire to the candidate that requests additional information about the candidate's independence, qualifications and other information that would assist the Governance Committee in evaluating the candidate, as well as certain information that must be disclosed about the candidate in the Company's proxy statement, if nominated. Candidates must complete and return the questionnaire within the time frame provided to be considered for nomination by the Governance Committee. No candidates were recommended by shareholders in connection with the 2020 Annual General Meeting.

The Governance Committee employs an unrelated search firm to assist the Committee in identifying candidates for Director when a vacancy occurs. The Committee also receives suggestions for Director candidates from Board members. All of our nominees for Director are current members of the Board. In evaluating candidates for Director, the Committee uses the qualifications described above, and evaluates shareholder candidates in the same manner as candidates from all other sources. Based on the Governance Committee's evaluation of the current Directors, each nominee was recommended for election.

Other Directorships, Conflicts and Related Party Transactions

We recognize the importance of having Directors with significant experience in other businesses and activities; however, Directors are expected to ensure that other commitments, including outside board memberships, do not interfere with their duties and responsibilities as members of the Johnson Controls' Board. In order to provide sufficient time for informed participation in their Board responsibilities non-executive Directors are required to limit their external directorships of other public companies to three and Audit Committee members are required to limit their audit committee membership in other public companies to two. The Board may, in its discretion, waive these limits in special circumstances. When a Director or the CEO intend to serve on another board, the Governance Committee is required to be notified. The Governance Committee reviews the possibility of conflicts of interest or time constraints and must approve the officer's or Director's appointment to the outside board. Each Director is required to notify the Corporate Secretary of any potential conflicts. The CEO may serve on no more than one other public company board. The CEO shall resign or retire from the Board upon resigning or retiring from his role as CEO, following a transition period mutually agreed upon between the CEO and the Compensation Committee.

The Company has a formal, written procedure intended to ensure compliance with the related party provisions in our Code of Ethics and with our corporate governance guidelines. For the purpose of the policy, a "related party transaction" is a transaction in which we participate and in which any related party has a direct or indirect material interest, other than ordinary course, arms-length transactions of less than 1% of the revenue of the counterparty. Transactions exceeding the 1% threshold, and any transaction involving consulting, financial advisory, legal or accounting services that could impair a Director's independence, must be approved by our Governance Committee. Any related party transaction in which an executive officer or a Director has a personal interest, or which could present a possible conflict under the Code of Ethics, must be approved by a majority of disinterested Directors, following appropriate disclosure of all material aspects of the transaction.

Under the rules of the Securities and Exchange Commission, public issuers such as Johnson Controls must disclose certain "related person transactions." These are transactions in which Johnson Controls is a participant where the amount involved exceeds $120,000, and a Director, executive officer or holder of more than 5% of our ordinary shares has a direct or indirect material interest. Although Johnson Controls engaged in commercial transactions in the normal course of business with companies where Johnson Controls' Directors were employed and served as officers, none of these transactions exceeded 1% of Johnson Controls' gross revenues and these transactions are not considered to be related party transactions.

Code of Ethics

We have adopted the Code of Ethics, which applies to all employees, officers, and Directors of Johnson Controls. The Code of Ethics meets the requirements of a "code of ethics" as defined by Item 406 of Regulation S-K and applies to our CEO, Chief Financial Officer and Chief Accounting Officer, as well as all other employees. The Code of Ethics also meets the requirements of a code of business conduct and ethics under the listing standards of the NYSE. The Code of Ethics is posted on our website at *www.johnsoncontrols.com* under the heading "About — Ethics and Compliance." We will also provide a copy of the Code of Ethics to shareholders upon request. We disclose any amendments to the Code of Ethics, as well as any waivers for executive officers or Directors on our website at *www.johnsoncontrols.com* under the heading "About Us — Ethics and Compliance." The Board of Directors annually certifies their compliance with the Code of Ethics. The Company maintains established procedures by which employees may anonymously report a possible violation of the Code of Ethics. The Audit Committee maintains procedures for the receipt, retention, and treatment of complaints received by the Company regarding accounting, internal accounting controls, or auditing matters. The Audit Committee also maintains procedures for employees to report concerns regarding questionable accounting or auditing policies or practices on a confidential, anonymous basis.

Sustainability

Sustainability

At Johnson Controls, our purpose is to power our customers' success and protect the environment. Sustainability is integrated into our company vision, values, products and services, and our culture.

We create innovative, sustainable, clean products and services that empower customers and communities to consume less energy and conserve resources. At Johnson Controls, we transform the environments where people live, work, learn and play. From optimizing building performance to improving safety and enhancing comfort, we drive the outcomes that matter most.

We believe that through leadership in sustainability, Johnson Controls creates long-term benefit for our customers, employees, shareholders, and society as a whole.

Sustainability Governance and Strategy

Our commitment to sustainability starts at the top and is integrated throughout our Company.

Board of Directors

The Board of Directors approves and oversees the implementation of the Company's mission, vision, and values. The Board of Directors is briefed each quarter on our sustainability progress.

Chairman and CEO and Executive Committee

Authority for day-to-day management of economic, environmental, and social topics is delegated to the Executive Committee which comprises the senior executives responsible for all our major corporate functions.

Global Sustainability Council

The Johnson Controls Global Sustainability Council (GSC) leads Johnson Controls efforts to be a global leader in providing scalable, market-based building and energy solutions addressing the world's greatest sustainability challenges. The GSC was established in 2009 to provide a structure for our enterprise-wide sustainability engagement. The GSC is responsible to the Chief Executive Officer and the Executive Committee.

2025 Sustainability Strategy

The GSC, which provides a central role as a coordinating structure for the enterprise on sustainability issues, is comprised of VP-level executives from different business areas, functions and regions (including operations, human resources, communications, marketing, legal, community engagement, products, and sales) to ensure that our Sustainability Strategy has senior-level support across the enterprise, globally.

Solutions	People	Partnerships	Performance	Governance
Provide increasingly sustainable products and services	Foster a culture of sustainability that engages and attracts people who want to make a difference	Lead in global partnerships that significantly increase our sustainability impact	Improve our sustainability performance and track progress	Demonstrate our commitment from the top

2019 Company Sustainability Performance Highlights

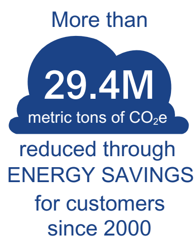
Products, Services and Solutions

Since January 2000, performance contracting projects have helped our customers save more than 29.4 Million Metric Tons CO_2e and $6.3 billion through energy and operational savings through our performance infrastructure work.

In 2019, Johnson Controls, along with its project partners, won the Digie Award for "Most Intelligent Building — Corporate Headquarters" for its groundbreaking work on Bee'ah's new sustainable headquarters in the United Arab Emirates. The award recognizes extraordinary examples of buildings, projects and communities that best demonstrate smart, connected, high performance building concepts throughout the world.

The 2019 Sustainability Awards named the YORK® Mission Critical Direct Evaporative Cooling Air Handling Unit the Sustainability Product of the Year in the business services industry. The Business Intelligence Group awards honor those who have made sustainability an integral part of their business practice. By maximizing cooling capacity per square foot and providing superior efficiency, the units optimize operational, water and energy usage to achieve lower energy costs.

Johnson Controls is committed to the worldwide transition to low-global warming potential (GWP) refrigerants and offers alternative refrigerants across all chiller platforms, with GWP reductions ranging from 56% to over 99%. We also offer a wide range of industrial refrigeration and cooling equipment using natural gas and other ultra-low GWP refrigerants.

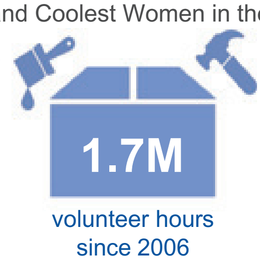


People

Our employee volunteer program, Blue Sky Involve, helps Johnson Controls employees share their passion and expertise through community volunteer activities and strengthens their professional and leadership skills. Employees volunteer with local non-profit organizations or schools to support education, environmental stewardship or social service efforts. Since Blue Sky Involve launched in 2006, Johnson Controls employees have volunteered 1.7 million hours in local communities. In fiscal year 2019, Johnson Controls' corporate philanthropy efforts resulted in contributions of more than $9.6 million. In addition, our employees gave in excess of $3.5 million.

In just one year, we expanded our sustainability business resource groups from one to emerging or existing chapters in North America, South America, Europe, the Middle East and Asia.

Grady Crosby, our Vice President, Public Affairs & Chief Diversity Officer, was named to the 2019 Top 15 Champions of Diversity list by DiversityGlobal Magazine. The annual list honors men and women across all industries who focus on creating diverse and inclusive organizational cultures through their work. He cites Johnson Controls' engagement of female engineers as one of his proudest Diversity & Inclusion initiatives, a program that continues to thrive through our Women in Technology group and Coolest Women in the World campaign.



Partnerships

We continue to expand our commitments with key partners. At the UN Climate Action Summit in September 2019, Johnson Controls made three additional global commitments including the Three Percent Club for Energy Efficiency, the Cool Coalition and the EP100 Cooling Challenge. These commitments expand on our existing work with the World Resources Institute and Sustainable Energy for All with a focus on building efficiency and highly-efficient cooling.

Performance

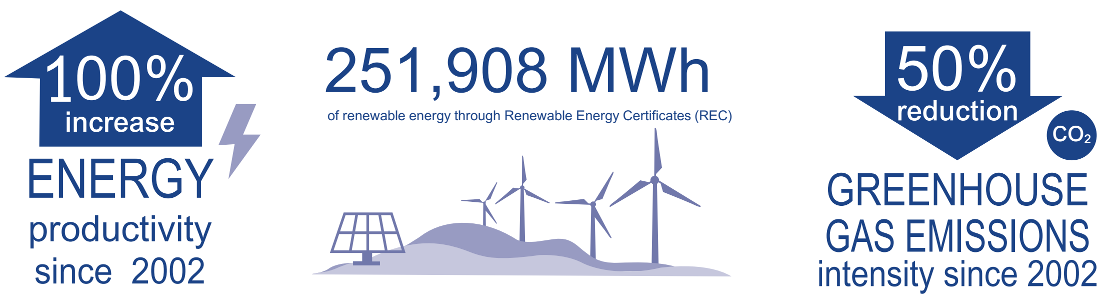
We achieved two significant sustainability milestones in 2019 by reducing our enterprise-wide greenhouse gas intensity by one-half while doubling the energy productivity of our operations over a 16 year period.

We are on track to meet our Zero Landfill goals and achieved 19 Zero Landfill certified facilities.

Our global renewable energy amounted to 251,908 MWh through purchase of Renewable Energy Certificates. Through this initiative we offset 100% of our greenhouse gas emissions from our Global Products manufacturing plants in the United States.

We exceeded our fiscal 2019 2.5% reduction goal for greenhouse gas intensity by more than two times with a 5.1% reduction. In addition we reduced our energy intensity by 1.8%.

In December 2019, we entered into two of the first sustainable improvement loans in the U.S. and the industrial sector with the execution of our new $2.5 billion Five-Year Senior Revolving Credit Facility and our $500 million 364 Day Senior Revolving Credit Facility. These facilities include a sustainability-linked pricing mechanism that reduces interest rates applicable to the facilities in connection with our sustainability performance: greenhouse gas emission reductions the Company is able to achieve from energy efficiency and renewable energy customer projects; reductions in our greenhouse gas intensity; and improvements in our safety record through a reduction in our total recordable incident rate.



Governance

We are honored to be listed on more than 40 leading sustainability indices and to be named one of the World's Most Ethical Companies and one of the 100 Best Corporate Citizens for the 14th year.

Our leaders proudly serve on social, environmental and governance leadership board positions around the world, furthering sustainability leadership globally. For example, the Executive Chairman of our GSC, Grady Crosby, serves as the Secretary of the Board of Directors and Chairman of the Nomination and Governance Committee of the United Nations Global Compact Network USA.

2019 World's Most Ethical Companies
Ethisphere Magazine,
14 selections since 2007

MSCI 2019 Constituent MSCI ESG Leaders Indexes

100 Best Corporate Citizens, 2019
Corporate Responsibility Magazine,
14 selections since 2007

CDP DRIVING SUSTAINABLE ECONOMIES

MEMBER OF Dow Jones Sustainability Indices In collaboration with SAM

FTSE4Good

Corporate ESG Performance Prime RATED BY ISS ESG

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Johnson Controls has been publicly reporting its sustainability results since 2002 and is proud of its history of transparency. We report at the GRI Standards-Comprehensive level, United Nations Global Compact Advanced level and respond to the CDP and fulfill additional requests by investors, customers and others for our sustainability data. We align our reporting to the Sustainability Accounting Standards Board (the "SASB") and the UN Sustainable Development Goals. Our public sustainability reports, policies and commitments can be found at:
https://www.johnsoncontrols.com/corporate-sustainability/reporting-and-policies.

For More Information

We believe that it is important that Johnson Controls' stakeholders and others are able to review its corporate governance practices and procedures. Our corporate governance guidelines are embodied in a formal document that has been approved by Johnson Controls' Board of Directors. It is available on our website at *www.johnsoncontrols.com* under the heading "Investors-Corporate Governance." We will also provide a copy of the corporate governance principles to shareholders upon request. Our corporate governance guidelines and general approach to corporate governance as reflected in our Memorandum and Articles of Association and our internal policies and procedures are guided by U.S. practice and applicable federal securities laws and regulations and NYSE requirements. Although we are an Irish public limited company, we are not subject to, nor have we adopted, the U.K. Corporate Governance Code or any other non-statutory Irish or U.K. governance standards or guidelines. While there are many similarities and overlaps between the U.S. corporate governance standards applied by us and the U.K. Corporate Governance Code and other Irish/U.K. governance standards or guidelines, there are differences, in particular relating to the extent of the authorization to issue share capital and effect share repurchases that may be granted to the Board and the criteria for determining the independence of Directors.

Compensation of Non-Employee Directors

Director compensation for fiscal 2018 for non-employee Directors consisted of an annual cash retainer of $120,000 and restricted stock units ("RSUs") with a grant date value of approximately $155,000 and a one-year vesting term. The Lead Director received an additional $30,000 and the chairs of each standing committee received an additional fee of $25,000. A Director who is also an employee receives no additional remuneration for services as a Director. Beginning fiscal 2019, the annual cash retainer was increased to $140,000 and the grant date value of the annual RSU award was increased to $175,000. All other fees remain unchanged. This is the first increase in the annual cash retainer and annual RSU award since the merger in September 2016. The Governance Committee recommended the increase in connection with its annual review of Director compensation, which included a review of industry and peer Director compensation practices. The Board believes that the increase is reasonable, appropriate and consistent with market practice.

Name	Fees Earned or Paid in Cash ($)	Stock Awards ($)[1]	Total ($)
Current Directors			
Ms. Jean Blackwell	$120,000	$155,000	$275,000
Mr. Pierre Cohade[2]	$ 98,804	$193,750	$292,554
Mr. Michael E. Daniels (CC)	$145,000	$155,000	$300,000
Mr. Juan Pablo del Vale Perochena (GC)	$145,000	$155,000	$300,000
Mr. W. Roy Dunbar	$120,000	$155,000	$275,000
Ms. Gretchen R. Haggerty	$120,000	$155,000	$275,000
Ms. Simone Menne	$120,000	$155,000	$275,000
Mr. Jürgen Tinggren(L) (AC)	$175,000	$155,000	$330,000
Mr. Mark Vergnano	$120,000	$155,000	$275,000
Mr. R. David Yost	$120,000	$155,000	$275,000
Mr. John D. Young	$120,000	$155,000	$275,000
Former Directors			
Mr. Brian Duperreault[3]	$ 51,667	$ —	$ 51,667

(L)= Lead Director

(AC)= Audit Committee Chair

(CC)= Compensation Committee Chair

(GC)= Governance Committee Chair

(1) This column reflects the fair value of the entire amount of awards granted to Directors calculated in accordance with Financial Accounting Standards Board Accounting Standards Codification (ASC) Topic 718, excluding estimated forfeitures. The fair value of RSUs is

computed by multiplying the total number of shares subject to the award by the closing market price of the Company's ordinary shares on the date of grant. RSUs granted to Board members generally vest and the underlying units are converted to shares and delivered to Board members on the anniversary of the grant date.

(2) Mr. Cohade became a Director on December 5, 2018.

(3) Mr. Brian Duperreault served as a Director through March 6, 2019.

Charitable Contributions

The Board understands that its members, or their immediate family members, serve as directors, trustees, executives, advisors and in other capacities with a host of other organizations. If Johnson Controls directs a charitable donation to an organization in which a Johnson Controls Director, or their immediate family member, serves as a director, trustee, executive, advisor, or in other capacities with the organization, the Board must approve the donation. Any such donation approved by the Board will be limited to an amount that is less than 2% of that organization's annual charitable receipts, and less than 2% of Johnson Controls' total annual charitable contributions. In line with its matching gift policy for employees, going forward Johnson Controls will make an annual matching gift of up to $3,000 for each Director to qualifying charities.

Committees of the Board

The table below sets forth committee membership as of the end of fiscal year 2019 and meeting information for each of the Board Committees.

Name	Audit	Governance	Compensation	Executive	Date Elected/ Appointed to Board
Ms. Jean Blackwell			X		06/13/2018
Mr. Pierre Cohade	X				12/05/2018
Mr. Michael E. Daniels			X(C)	X	03/10/2010
Mr. Juan Pablo del Valle Perochena		X(C)		X	09/02/2016
Mr. W. Roy Dunbar			X		06/14/2017
Ms. Gretchen R. Haggerty	X				03/07/2018
Ms. Simone Menne	X				03/07/2018
Mr. George R. Oliver				X(C)	09/28/2012
Mr. Jürgen Tinggren (L)	X(C)			X	03/05/2014
Mr. Mark Vergnano			X		09/02/2016
Mr. R. David Yost		X			03/12/2009
Mr. John D. Young		X			12/07/2017
Number of Meetings During Fiscal Year 2019	***10***	***4***	***6***	***2***	

(L) = Lead Director

(C) = Committee Chair

During fiscal 2019, the full Board met 4 times. All Directors attended at least 75% of the Board and committee meetings on which they sit. The Board's governance principles provide that Board members are expected to attend each Annual General Meeting in person or by phone. At the 2019 Annual General Meeting, except for Ms. Menne and Mr. Yost, all of our current Board members who were Board members at such time were in attendance.

Audit Committee. The Audit Committee monitors the integrity of Johnson Controls' financial statements, the independence and qualifications of the independent auditors, the performance of Johnson Controls' internal auditors and independent auditors, Johnson Controls' compliance with legal and regulatory requirements and the effectiveness of Johnson Controls' internal controls. The Audit Committee is also responsible for retaining, subject to shareholder approval, evaluating, setting the remuneration of, and, if appropriate, recommending the termination of Johnson Controls' auditors. The Audit Committee has been established in accordance with Section 3(a)(58)(A) of the Securities Exchange Act of 1934, as amended. The Audit Committee operates under a charter approved by the Board. The charter is posted on Johnson Controls' website at *www.johnsoncontrols.com* and we will provide a copy of the charter to shareholders upon request. The current members of the Audit Committee are Messrs. Cohade and Tinggren and Mses. Haggerty and Menne, each of whom is independent under NYSE listing standards and SEC rules for audit committee members. Mr. Tinggren is the chair of the Audit Committee as well as our independent Lead Director. The Board has determined that each of Mr. Tinggren and Mses. Haggerty and Menne are audit committee financial experts.

Governance Committee. The Governance Committee is responsible for identifying individuals qualified to become Board members, recommending to the Board the Director nominees for the Annual General Meeting, developing and recommending to the Board a set of corporate governance principles, and playing a general leadership role in Johnson Controls' corporate governance. In addition, the Governance Committee oversees our environmental, health and safety management system and enterprise risk assessment activities. The Governance Committee operates under a charter approved by the Board. The charter is posted on Johnson Controls' website at *www.johnsoncontrols.com* and we will provide a copy of the charter to shareholders upon request. The current members of the Governance Committee are Messrs. del Valle Perochena, Yost and Young, each of whom is independent under NYSE listing standards. Mr. del Valle Perochena chairs the Governance Committee.

Compensation Committee. The Compensation Committee reviews and approves compensation and benefits policies and objectives, determines whether Johnson Controls' officers, Directors and employees are compensated according to these objectives, and assists the Board in carrying out certain of its responsibilities relating to the compensation of Johnson Controls' executives. The Compensation Committee operates under a charter approved by the Board. The charter is posted on Johnson Controls' website at *www.johnsoncontrols.com* and we will provide a copy of the charter to shareholders upon request. The current members of the Compensation Committee are Ms. Blackwell and Messrs. Daniels, Dunbar and Vergnano. Mr. Daniels is the chair of the Compensation Committee. The Board of Directors has determined that each of the members of the Compensation Committee is independent under NYSE listing standards. In addition, each member is a "Non-Employee" Director as defined in the Securities Exchange Act of 1934 and is an "outside director" as defined in section 162(m) of the U.S. Code. For more information regarding the Compensation Committee's roles and responsibilities, see the Compensation Discussion and Analysis.

Executive Committee. The Executive Committee assists the Board in fulfilling its oversight responsibility with its review and monitoring of major corporate actions including external corporate development activities, business portfolio optimization, capital appropriations and capital expenditures. The Executive Committee was established in September of 2016 and operates under a charter approved by the Board. The charter is posted on Johnson Controls' website at *www.johnsoncontrols.com* and we will provide a copy of the charter to shareholders upon request. The current members of the Executive Committee are Messrs. Daniels, del Valle Perochena, Oliver and Tinggren. Mr. Oliver is the chair of the Executive Committee.

Compensation Committee Interlocks and Insider Participation

During fiscal 2019, Ms. Blackwell and Messrs. Daniels, Dunbar, Vergnano and Yost served on the Compensation Committee. None of the members of the Compensation Committee during fiscal 2019, or as of the date of this proxy statement, is or has been an officer or employee of the Company and no executive officer of the Company served on the compensation committee or board of any company that employed any member of the Company's Compensation Committee or Board of Directors.

Compensation Discussion & Analysis

At Johnson Controls our promise is to advance the safety, comfort and intelligence of spaces and places to power our customer's mission. This requires us to work with integrity and purpose, focus on our customers and the future, together as one team. To ensure we are successful, our compensation programs are designed to reward our employees, including our executive officers, accordingly.

This Compensation Discussion & Analysis (the "CD&A") section of our Proxy sets out the mechanics of our executive compensation program, in particular its application and outcomes in respect of fiscal 2019, ending September 30, 2019.

2019 NAMED EXECUTIVE OFFICERS (NEOs)

Named Executive Officer	Title
George R. Oliver	Chairman & Chief Executive Officer
Brian J. Stief	Vice Chairman & Chief Financial Officer
Jeffrey M. Williams	Vice President & President — Global Products, Building Technologies and Solutions
Rodney M. Rushing	Vice President & President — North America, Building Technologies and Solutions
John Donofrio	Executive Vice President, General Counsel
Former NEOs	
William C. Jackson	Vice President & President — Global Products, Building Technologies and Solutions and Corporate Strategy
Joseph A. Walicki	Vice President & President — Power Solutions

Executive Summary

Fiscal 2019 was a year of strategic and financial achievements. From a strategic standpoint, we completed our transformation to a pure play Buildings company with the divestiture of Power Solutions business, positioning us to be a leader in the evolution of smart buildings, infrastructure and cities. We quickly began allocating the proceeds from the sale to de-lever the balance sheet and return cash to our shareholders. Financially, we met or exceeded each of the financial targets we set at the beginning of the year. In fiscal 2019, we had strong growth in orders and organic sales, solid margin expansion and significant growth in adjusted EPS from continuing operations. We also continued to improve free cash flow conversion, exceeding our target for the year.

In fiscal 2020, we believe that we are well-positioned to build upon our performance in 2019 by leveraging our strong backlog position, remaining focused on operational excellence, and continuing to redeploy capital to shareholders. Throughout the year, our management team remained focused on creating shareholder value, driving the Company's strategic initiatives and growth agenda, implementing operational improvements, improving the employee experience, and delivering its financial objectives.

FISCAL 2019 PRIORITIES AND PERFORMANCE

Placing additional focus on the service aspects of our business, which represents approximately one-third of our revenue and provides a very profitable and resilient revenue stream. **In fiscal 2019, we increased organic service growth by mid-single digits.**

Improving margin performance by driving simplification across the organization, better execution in our field businesses and improved productivity with our manufacturing operations. Together **these actions drove a 60 basis point improvement in adjusted EBIT margins.**

Driving a performance culture throughout our organization to ensure our employees are aligned with, and accountable to, a clearly articulated strategy and increasing efficiency by standardizing operations and creating more effective processes. In connection with promoting this culture, we are giving our employees the tools to improve their output and enhance their employment experience.

A continued emphasis on reinvesting back in the business from both a sales and product perspective. We continued to drive commercial excellence, by hiring, training and appropriately incentivizing our front line sales personnel as well as implementing strategic account management tools. Additionally, we continued reinvesting in our products portfolio and driving new product introductions. Together **these actions contributed to 5% organic sales growth for the Company; with organic field orders also up 5% and backlog up 8%.**

Focusing on cash generation by implementing a set of fundamental cash management processes and procedures across the Company. **In fiscal 2019, we improved adjusted free cash flow from $1.4 billion to $1.7 billion and achieved a free cash flow conversion rate of 99%.**

In addition to the above, in fiscal 2019 we:

- Increased adjusted EPS from continuing operations 23% from $1.59 to $1.96.
- Payed down debt by $3.7 billion, largely as the result of the use of proceeds from the Power Solutions sale.
- Repurchased approximately 155 million shares for approximately $6 billion, lowering our average weighted share count by more than 6.1%.
- Paid $920 million in dividends.
- Achieved synergy and productivity savings of $196 million.

We feel good about our position entering fiscal 2020 as our backlog provides visibility in our field businesses, our service business tends to be more resilient and we continue to benefit from self-help and capital deployment. We remain focused on driving execution and delivering for our customers and shareholders.

* See Annex I to this Proxy Statement for a reconciliation of organic sales growth, adjusted EPS from continuing operations, adjusted free cash flow, free cash flow conversion and adjusted EBIT margin to our results for the most directly comparable financial measures as reported under generally accepted accounting principles in the United States.

FISCAL 2019 COMPENSATION

Our compensation program is designed to effectively and transparently align compensation with performance. Accordingly, the achievements described on the previous page are reflected in the outcomes under our compensation program, with annual incentives and fiscal 2017 PSU awards being earned above target.

Annual incentive awards ranged from 144% to 154% of target
See **page 51** for details

Fiscal 2017 PSU awards subject to a three-year performance period concluding September 30, 2019, paid out at 146% of target
See **page 54** for details

To assess the alignment between performance and compensation, the Compensation Committee ("Committee") periodically requests that its independent compensation consultant, Farient Advisors LLC, evaluate the relationship, and considers this relationship in making pay decisions pertaining to the CEO. On the Committee's behalf, Farient used a number of methods in assessing our pay for performance alignment, including:

- Farient's proprietary alignment methodology, which assesses the extent to which 3-year TSR and 3-year average Performance-Adjusted Compensation (which includes actual salary, actual annual incentives paid, and the value of equity at the end of the 3-year period using actual PSU awards, if known, and target PSU awards for incomplete performance cycles, and the Black-Scholes value of options granted during the 3-year period, all valued at the stock price at the end of the 3-year period) are aligned;
- A simulation of pay-for-performance tests used by proxy advisory firms; and
- An analysis of realizable relative to target pay compared to peers.

Given the results of these assessments, the Committee concluded that Johnson Controls' executive compensation, including that for the CEO, is aligned with our performance.

FISCAL 2019 KEY COMMITTEE ACTIVITIES

During fiscal 2019, the Committee addressed several items in addition to the standing annual agenda items which are highlighted below.

Shareholder Engagement

Following low shareholder advisory say-on-pay votes in 2017 and 2018, the Committee was pleased to see an increase in shareholder support at the 2019 Annual Shareholder Meeting. The Committee attributes the increase in shareholder support to listening to the feedback of our shareholders collected via direct engagement, and subsequent plan design and target setting changes which were informed by this input. Recognizing the importance of this ongoing dialogue, the Company continued to engage with shareholders throughout fiscal 2019, listening and subsequently delivering on the commitments we made.

As part of the engagement, the Company reached out to our top 25 shareholders representing approximately 66% of our outstanding shares. Eleven investors, representing approximately 41% of our outstanding shares, requested meetings which took place in fiscal 2019. We consistently heard that our shareholders are pleased with our approach to executive compensation, following changes made over the past few years. The program today is well received, aligned with shareholders' interests and better aligns with market practices post-merger.

In considering changes, the Committee takes account of shareholder feedback, as well as evolving market practices, the advice of its independent compensation consultant, and our business strategy. The recent changes include:

- Enhanced target setting process to drive closer alignment between management plans and shareholder expectations;
- Revised compensation peer group to better reflect our business dynamics; approved an additional 'performance group' of select peers, enabling us to reference our peers' performance expectations in our goal setting process;
- Adopted a cumulative three-year performance period for PSUs (previously three one-year periods);
- Included relative TSR as an independent measure rather than a modifier for PSUs;
- Re-weighted earnings and ROIC metrics that govern the vesting of PSUs, in connection with the addition of relative TSR as an independent measure;
- Removed club dues as a perquisite; and
- Enhanced clarity in our disclosure of compensation decisions and outcomes.

Executive Departures

During fiscal 2019, Messrs. Jackson and Walicki departed Johnson Controls. Both individuals were subject to legacy, change-in-control agreements that pre-dated our merger. Given their respective departures were within 36 months of the merger, the terms of these legacy agreements dictated the compensation the Company was required to provide.

Calculations for payments were made in accordance with the agreements. Given the payment of annual incentives in respect of the fiscal 2019 performance year was not covered by these agreements, the Committee resolved that no annual incentive performance program (AIPP) payments would be made to either individual.

The Committee is aware that the legacy change-in-control agreements were a sensitive area for shareholders. These payments represent the last that are required under legacy severance and change-in-control agreements following the work over the last 12-18 months to phase out legacy agreements. Today, all NEOs, except Mr. Stief, are governed by the Johnson Controls International Severance and Change-in-Control Policy for Officers that was amended and restated by the Committee effective December 7, 2017. In connection with a retention award made to Mr. Stief in September 2017, Mr. Stief terminated his change-in-control agreement and agreed to not be covered by the Company's Severance and Change-in-Control Policy.

NAVIGATING THE CD&A

In the balance of this CD&A we provide additional details on the items described on the previous pages, along with information on our executive compensation design, management and outcomes.

Executive Compensation Framework	Executive Compensation Philosophy and Principles | Elements of Executive Compensation	**42**
Executive Compensation Management	Roles in Determining Executive Compensation | Use of an Independent Compensation Consultant | Annual Say-on-Pay Vote | Shareholder Engagement | Use of Market Data | Metric Selection and Goal Setting	**44**
Fiscal 2019 Compensation Decisions and Outcomes	Base Salary | Annual Incentive Performance Program | Long-Term Equity Incentive Awards	**49**
Additional Information	Other Executive Compensation Policies | Executive Benefits and Perquisites | Executive Severance and Change-in-Control Policy | Global Executive Assignment Agreement | Tax and Accounting Considerations	**55**

Executive Compensation Framework

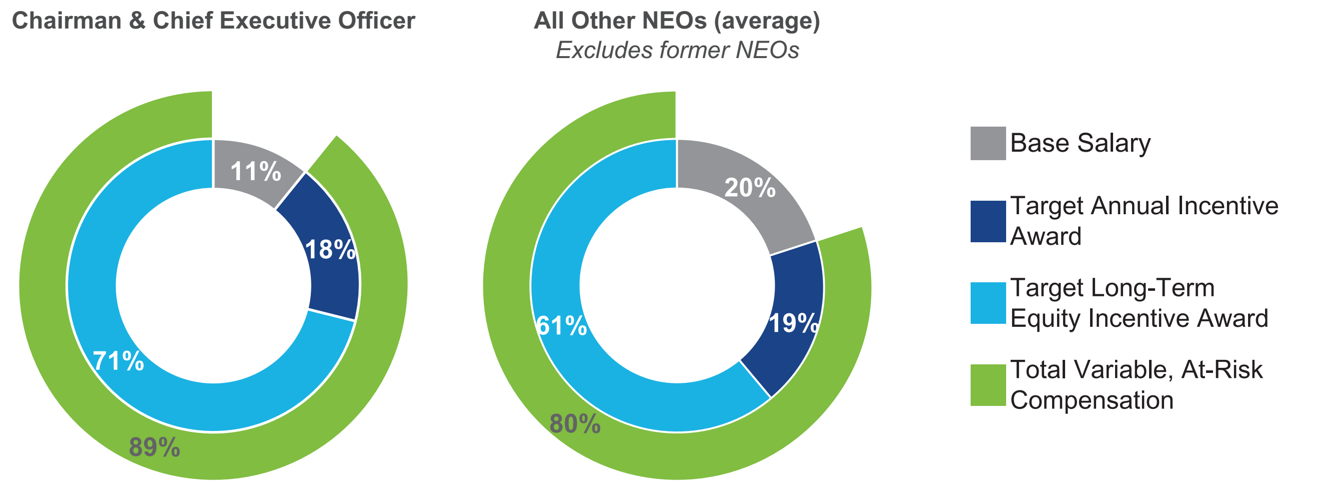
EXECUTIVE COMPENSATION PHILOSOPHY AND PRINCIPLES

Our executive compensation program is designed to attract and retain highly-qualified executives, motivate our executives to achieve our overall business objectives, and align our executives' interests with those of our shareholders. We achieve this through a set of underlying principles that inform the design and operation of our executive compensation program.

Pay-for-performance	✓	Set majority of compensation as variable and at-risk
	✓	Tie incentives to performance against financial, operational and strategic goals
	✓	Use quantifiable and measurable performance metrics and goals that are clearly disclosed
	✓	Provide significant upside and downside potential for superior and low performance
Target pay appropriately	✓	Benchmark compensation against practices in similarly-sized general industry companies
	✓	In general, target compensation at market median for comparable positions (+/- 20%)
Align interests with our stakeholders	✓	Design programs that discourage unnecessary or excessive risk-taking
	✓	Cap payout opportunities under the incentive plans
	✓	Reward long-term financial results that drive financial creation through a balanced equity mix
	✓	Operate meaningful share ownership guidelines
	✓	Provide a pay recoupment (i.e. clawback) policy
	✓	Prohibit insider trading, hedging and pledging of Company stock
	✓	Engage with shareholders on executive compensation matters
	✓	Engage an independent compensation consultant to provide analysis and advice
	✓	Conduct an annual say-on-pay vote
Avoid poor governance practices	✗	No tax gross-ups on any change-in-control benefits
	✗	No single-trigger accelerated vesting on a change-in-control (double-vesting provisions)
	✗	No discounting, reloading or re-pricing of share options without shareholder approval
	✗	No guaranteed compensation or guaranteed increases
	✗	No excessive perquisites
	✗	No employment agreements with executive officers, except where legally required in which case they follow market norms
	✗	No dividends paid on unvested restricted share units or performance share units until such awards vest

ELEMENTS OF EXECUTIVE COMPENSATION

Consistent with our compensation philosophy, the majority of our NEOs' target total direct compensation in fiscal 2019 was variable and at-risk.



Element	Purpose	Performance Alignment	Recent Changes
Base Salary	Recognize role scope, skills required, performance, contribution, leadership and potential	Individual performance taken into account when considering changes	No increases in fiscal 2019
Annual Incentive Award	Tie compensation to the successful execution of our operating plan and strategic goals	Opportunity of 0% - 200% of target based on performance Based on performance against three equally weighted financial metrics: EBIT Growth, revenue growth, and adjusted free cash flow conversion; and a modifier (+/- 25%) based on performance against pre-established shared strategic priorities	No changes in fiscal 2019
Long-Term Incentive Equity Awards	Attract, retain and motivate executive talent; align interests with our shareholders and value realization with stock price; drive accountability for long-term performance	PSUs (50%), share options (25%) and RSUs (25%) PSUs based on performance against three equally weighted measures assessed over three years: cumulative pre-tax earnings, average pre-tax ROIC and relative TSR versus the S&P 500 Industrials Share option and RSU value realization tied to Johnson Controls' stock price performance. Options vest 50% after two years and 50% after three years; RSUs vest equally over three years	For fiscal 2019 PSU awards: ■ All performance measures now assessed cumulatively over three years, rather than three one-year performance periods ■ Relative TSR incorporated as a standalone metric, rather than acting as a modifier to pre-tax earnings and pre-tax ROIC

Executive Compensation Management

The Committee comprises independent directors who develop, amend and approve our executive compensation program. To ensure the executive compensation program is effective and reasonable, the Committee uses a variety of inputs including the results of our annual say-on-pay vote, feedback from shareholders, the advice of the Committee's independent compensation consultant informed by market practices, and input from the Chairman & Chief Executive Officer.

ROLES IN DETERMINING EXECUTIVE COMPENSATION

Compensation Committee

- Develop, amend and approve executive compensation programs to remain consistent with the our values and philosophy, support the recruitment and retention of executive talent, and help achieve business objectives
- Determine and approve the appropriate level of compensation for all executive officers, other than the CEO
- Determine and approve short- and long-term incentive plan targets for all executive officers, other than the CEO
- Evaluate CEO individual performance and recommend CEO compensation to the independent Board of Directors
- Review talent development and succession plans for the CEO and other executive officer roles, and make recommendations to the independent Board of Directors regarding the appointment of the executive officers
- Approve the independent compensation consultant's fees and terms of the engagement

Independent Directors of the Board

- Review and approve CEO compensation, and annual and long-term corporate goals relevant to CEO compensation
- Review and approve talent development and succession planning recommendations for all executive officer roles

CEO

- Evaluate performance for the executive officers, other than himself, and make compensation recommendations to the Committee

Independent Compensation Consultant

- Inform the Committee of market trends, developments in executive compensation, and provide recommendations for appropriate adjustments to the Company's compensation program, policies, and practices in-line with our business and talent strategies, and investor expectations
- Analyze the prevailing executive compensation structure and plan designs, and asses the competitiveness of our compensation program in the context of aligning executive officer interests with those of our shareholders
- Test the incentive plan performance goals to ensure appropriate rigor and alignment with shareholder interests

USE OF AN INDEPENDENT COMPENSATION CONSULTANT

The Committee has the sole authority to engage the services of outside advisors, experts, and others to assist in performing its duties. Since December 2017, the Committee has engaged Farient Advisors. Other than the services it provided to the Committee, Farient Advisors did not provide any services to the Company. The Committee has considered and assessed all relevant factors that could give rise to a potential conflict of interest with respect to the work performed. Based on this review, the Committee has determined that Farient Advisers is independent of the Company and its management, and did not identify any conflict of interest.

ANNUAL SAY-ON-PAY VOTE

In designing our executive compensation program, the Committee annually presents a 'say-on-pay' vote to our shareholders. In March 2019 we received 88% support, an improvement on our prior vote. This indicated the majority of our shareholders supported our executive compensation program and the changes the Committee had made. The Company continued its shareholder outreach efforts throughout 2019.

SHAREHOLDER ENGAGEMENT

Johnson Controls is committed to maintaining ongoing dialogue with our shareholders to enable us to solicit and respond to feedback about our executive compensation programs in a timely manner. The feedback that we receive through engagement is an important input into discussions and decisions regarding executive compensation, in addition to market practices, the advice of our independent compensation consultant and business strategy.

During fiscal 2019, we reached out to our top 25 shareholders, representing approximately 66% of our outstanding shares. Eleven investors, representing approximately 41% of our outstanding shares, requested meetings which took place in fiscal 2019. We consistently heard that our shareholders are pleased with our approach to executive compensation, following changes made over the past few years. The program today is well received, aligned with shareholders' interests and better aligns with market practices post-merger.

What We Heard	Our Response
Short-term and long-term metrics align with what the business needs to deliver strategically	Shareholders and the Committee are in agreement that the existing incentive metrics appropriately align compensation opportunities with our strategic priorities. The Committee continues to believe an enterprise-wide short-term incentive plan is important to drive collective accountability and align with the overall experience of our shareholders. However, reflecting feedback received, an individual modifier will be added to the short-term incentive plan beginning fiscal 2020. This change will strengthen the pay for performance dynamic and personal accountability of executive officers, particularly those responsible for business unit performance. The modifier will enable the Committee to adjust awards by -25% to +10%, informed by a judgement-based assessment of how performance was delivered versus our culture and values, business unit contributions to enterprise-wide performance as appropriate, and any exceptional circumstances during the year. All awards will remain subject to an overall maximum of 200% of target.
Stability in compensation design is preferred, particularly given the long-term nature of the program	Shareholders welcomed the changes to the PSU design for fiscal 2019: the inclusion of relative TSR as a standalone metric; the weight rebalancing of ROIC and pre-tax earnings; the introduction of a cumulative three-year performance period. No near-term substantive changes are envisioned at this time to the performance metrics or compensation design.
Peer comparisons are a critical part of the executive compensation process	The Committee revised the compensation peer group for use in fiscal 2019 compensation decisions, and has disclosed more details on the peer selection process. The intent of the revisions is to better reflect our business dynamics. In addition, a 'select group' of peers has been identified to factor into the goal-setting process. For the determination of fiscal 2020 performance goals, the Committee will consider the historical and projected performance of these peer companies, alongside our historical and projected performance, the historical and expected performance of the S&P Industrials, our annual plan and external macro-economic factors impacting our business. This revised target setting process enables us to drive closer alignment between management plans and shareholder expectations.

In addition, following a market review the Committee resolved to remove club dues as part of our perquisite program with effect from January 2019. While not informed directly by shareholder feedback, we are confident shareholders will be supportive of this change.

In prior years, the Committee heard feedback expressing concerns about the nature of select executive severance agreements. Where possible, changes to the severance agreements were made to better align them with market norms. As of September 2, 2019, all of our NEOs, excluding Mr. Stief, are now governed by the Johnson Controls International Severance and Change-in-Control Policy for Officers that was amended and restated by the Committee effective December 7, 2017. In connection with a retention award made to Mr. Stief in September 2017, Mr. Stief terminated his change-in-control agreement and agreed to not be covered by the Company's Severance and Change-in-Control Policy.

To assist in the understanding of our executive compensation program and policies, the Committee has also sought to enhance disclosure this year. The Committee is committed to being transparent and disclosing program, policies and processes that are informed by shareholder feedback and market practices, and then operating them in a clear manner.

USE OF MARKET DATA

The Committee engages the independent compensation consultant to undertake an annual review of the compensation peers that are used to provide insight into market competitive pay levels and practices. In partnership with the independent consultant, a robust process has been established to appropriately assess the relevance of different companies in the context of making compensation comparisons. To establish the fiscal 2019 peers, the following factors were considered.

U.S. Traded Companies	Companies with U.S. operations that will disclose compensation levels and design practices for NEOs
Similar Business Models	Companies that operate in similar arenas, requiring similar skills and experiences from their executive talent, and being subject to similar market forces
Size (Revenue Within 1/2x-2x Range)	Companies of a broadly relevant size as an indicator of complexity and scope for executive roles; companies that are of a reasonable size for making market comparisons
S&P 500 Industrials Company	Companies that operate in the broad industrials arena, again indicating executive talent with relevant skills and companies that are subject to similar market forces
Geographic Footprint	Companies with international revenue of at least 35% of their total revenue, indicating multi-national operations, the complexity that results in and the associated skills required by executives
Other Factors	Other factors that are relevant as it pertains to global business operations and executive talent, such as operations that emphasize technology

In March 2018 the Committee approved several changes to the compensation peer group, informed by feedback from our shareholders, the results of the above analysis, and the advice of our consultant, with the goal of better reflecting our business model. This compensation peer group was used to inform pay decisions in respect of fiscal 2019 and also for fiscal 2020.

Fiscal 2019 & 2020 Compensation Peers		Changes
■ 3M Company ■ Caterpillar Inc. ■ Cummins Inc. ■ Deere & Company ■ Eaton Corporation* ■ Emerson Electric Co.* ■ Fluor Corporation ■ General Dynamics Corporation	■ Honeywell International, Inc.* ■ Ingersoll-Rand plc* ■ Parker Hannifin Corporation ■ Raytheon Company ■ Stanley Black & Decker Inc. ■ United Technologies Corporation*	**Removed**: Danaher Corp., DowDuPont Inc., International Paper Company, Lockheed Martin Corporation, Northrop Grumman Corporation, and Whirlpool Corporation **Added**: Cummins Inc., Fluor Corporation, Ingersoll-Rand plc, Parker Hannifin Corporation, and Stanley Black & Decker Inc.

* The Committee also references a subset of the compensation peers (the ‘select peer group’) marked above with the addition of Lennox International, to provide additional context when setting performance goals under Johnson Controls’ performance-based incentive plans. Lennox International is not included as a compensation peer because it is significantly smaller than Johnson Controls and falls outside of the size criteria. Additional information on the goal setting process is summarized in the following section.

In using the market data, the Committee generally sets an initial guideline of positioning target total direct compensation (base salary, annual incentive target, and long-term incentive target) for each of our executive officers within a range (+/-20%) of the 50th percentile of the compensation peer group. At the time of approval of the compensation peers, Johnson Controls ranked at the 51st percentile with respect to revenue, and 41st percentile with respect to three-year average market cap. The Committee is therefore comfortable that the combination of this market positioning and compensation peer group is appropriate.

Given reliable proxy data is only available for the CEO and CFO, general industry survey data is referenced using the same approach for these as well as all other roles. The variation of actual pay relative to the market data is dependent on the executive officer's performance, experience, knowledge, skills, level of responsibility, potential to impact our performance and future success, and the need to retain and motivate strategic talent.

METRIC SELECTION AND GOAL SETTING

Central to our pay-for-performance philosophy is maintaining a rigorous goal setting process that is used to determine both our annual and long-term incentive plan performance targets. Each year, management, the Committee, and our independent consultant spend meaningful time determining metrics, goal ranges and testing the appropriateness of our incentive plan thresholds, targets, and maximums.

Each September, the Committee discusses how our incentive plan metrics support our business, talent, and compensation strategies and whether there are any areas for improvement. Against this backdrop, the Committee considered and approved changes informed by shareholder feedback for fiscal 2019.

- Changed the measurement period of our PSU goals to a three-year cumulative performance period, rather than three annual measurement periods
- Reweighted long-term incentive plan goals as follows:
  - 1/3 Three-Year Cumulative Pre-Tax Earnings (previously weighted at 60%)
  - 1/3 Three-Year Average Pre-Tax ROIC (previously weighted at 40%)
  - 1/3 Three-Year Relative TSR versus the S&P 500 Industrials (previously used as a modifier)
- Beginning fiscal 2020, added an individual modifier, allowing the committee to adjust awards -25% to +10%

Both management and the Committee believe these changes further align our compensation strategy with our business strategy and will focus our executives on delivering long-term, sustainable value creation for our stakeholders.

Following the agreement of metrics, each December we establish the performance goals and ranges associated with each of them. The objective is to set ranges that contain adequate stretch, but also fit within our risk framework so as not to encourage excessive risk taking. We take account of the Company's historical and projected performance, historical and expected performance of the S&P Industrials, and historical and projected performance of our select peer group in conjunction with our annual plan and external macro-economic factors impacting our business.

Based on the data, management proposes goal ranges for each performance metric to the Committee, which are also assessed by the independent compensation consultant. In its analysis, our independent consultant assesses the probability of achievement of our threshold, target, and maximum and provides the Committee with an independent perspective on the robustness of our goals. The Committee tests the stretch and potential payouts to ensure they are challenging and the level of performance will be reflected appropriately in the payout levels.

Management	Independent Consultant	Compensation Committee
Propose goal ranges based on analysis of: ■ Johnson Controls' financial forecasts ■ Historical S&P 500 Industrials performance ■ Projected S&P 500 Industrials performance ■ Projected compensation peers' performance ■ Analyst expectations ■ Shareholder feedback ■ Macro-economic trends	Evaluate management-proposed ranges by: ■ Assessing likelihood of achievement based on historical performance ■ Validating against analyst expectations of performance ■ Reviewing absolute value and spread of threshold, target and maximum levels	Approves the proposed ranges following a review of materials prepared by management and the independent compensation consultant, and the resolution of any questions raised which may result in revisions to the proposed ranges

Our metric selection and goal setting processes allow for the continual assessment of how our incentives support our strategy and drive shareholder returns.

Fiscal 2019 Compensation Decisions and Outcomes

BASE SALARY

Following a review of compensation in September 2018, base salaries were left unchanged for fiscal 2019, effective October 1, 2018.

NEO	Fiscal 2018 Base Salary	Fiscal 2019 Base Salary	Percent Change
George R. Oliver	$1,500,000	$1,500,000	0%
Brian J. Stief	$ 742,000	$ 742,000	0%
Jeffrey M. Williams	$ 742,000	$ 742,000	0%
Rodney M. Rushing	*	$ 700,000	*
John Donofrio	$ 700,000	$ 700,000	0%
Former NEOs			
William C. Jackson	$ 848,000	$ 848,000	0%
Joseph A. Walicki	$ 722,000	$ 722,000	0%

* *New NEO for FY 2019*

ANNUAL INCENTIVE PERFORMANCE PROGRAM (AIPP)

Our AIPP rewards executives for their execution of our operating plan and other strategic initiatives, as well as for financial performance that drives long-term shareholder value creation. Award opportunities are generally targeted at market 50th percentile. This plan places a significant portion of total cash compensation at risk, thereby aligning executive rewards with financial results. It also offers an opportunity for meaningful pay differentiation tied to the performance of the enterprise and the individual business segments. Payment is capped at 200% regardless of the achievement of the strategic modifiers.

For fiscal 2019, AIPP financial measures were earnings before interest and taxes (EBIT) growth, revenue growth, and adjusted enterprise free cash flow. These measures, defined below, focus our executive officers on the Company's performance and the business's profitability, operating strength and efficiency.

Metric, Weight and Definition	Weight	Why It Matters
Segment EBIT growth | Net income attributable to each business unit (Corporate is the aggregate of the business units and Corporate), adjusted for income tax expense, financing costs, non-controlling interests, foreign exchange and certain significant special items, such as transaction/integration/separation costs, impairment charges, acquisitions/divestitures, restructuring costs and the adoption of new accounting pronouncements, all as reflected in our audited financial statements that appear in our Annual Report on Form 10-K.	1/3	Aligns annual organic EBIT growth resulting from effective and efficient execution of our operating plan to broadly comparable companies subject to similar external market and economic factors.
Revenue growth | Revenue for each business unit (Corporate is the aggregate of the business units) adjusted for the impact of foreign exchange and acquisitions/divestitures.	1/3	Aligns annual organic revenue growth resulting from strong sales execution, product and innovation investments, and market share gains to broadly comparable companies subject to similar external market and economic factors.
Adjusted free cash flow conversion | Free cash flow divided by net income attributable to JCI, both adjusted for certain significant special items such as transaction/integration/separation costs, impairment charges, acquisitions/divestitures, restructuring costs, mark-to-market adjustments related to restricted asbestos investments and pension and post retirement plans, and the adoption of new accounting pronouncements, all as reflected in our audited financial statements that appear in our Annual Report on Form 10-K. Free Cash Flow is defined as cash provided by operating activities less capital expenditures.	1/3	Establishes annual adjusted free cash flow conversion improvement targets resulting from trade working capital and other operating cash flow initiatives accompanied with disciplined capital expenditure management. Our ability to generate cash is critical to our growth and funding of operating activities.
Strategic modifier | For fiscal 2019, the following metrics were utilized: ■ Organic EBIT margin improvement ■ Secured order margin improvement ■ Organic secured orders growth The same metrics and overall modifier apply to all NEOs.	Modifier +/- 25%	Establishes specific financial and operating improvement metrics each year which are critical to support delivery of our operating plan.

For Messrs. Oliver, Stief and Donofrio, 100% of the financial portion of the AIPP earned is based on performance relative to Corporate results. For Messrs. Williams and Rushing, 50% of the financial portion of the AIPP earned is based on performance relative to Building Technologies and Solutions and 50% relative to Corporate results. Actual payout can range from zero to two times the target payout percentage for the financial portion, depending on the achievement of goals, with the potential payments increasing as performance improves.

In response to the departures of Messrs. Jackson and Walicki during fiscal 2019, the Committee determined that they would receive no AIPP payout given their separation from the Company and payouts they received under their legacy change-in-control agreements.

Fiscal 2019 AIPP Performance

Fiscal 2019 was a solid year for the Company, with delivery on all financial and strategic commitments. This was evidenced through organic sales growth of over 5%, orders and backlog up over 5% and 8% respectively on an organic basis, double-digit EBIT growth, strong margin execution and cash generation, with cash conversion at 99%. This aggregate performance resulted in annual bonuses being earned above target, with payouts ranging from 144% to 154% of target depending on role.

Performance Metric	Weight	Fiscal 2019 Performance Goals				Payout Factor
		Threshold	Target	Maximum	Actual	
Corporate – 100% Applies to Messrs. Oliver, Stief and Donofrio & 50% Applies to Messrs. Williams and Rushing						
EBIT Growth	1/3	6.0%	10.0%	14.0%	12.2%	147%
Revenue Growth	1/3	4.0%	5.0%	7.0%	5.1%	
Adjusted Enterprise Free Cash Flow Conversion	1/3	90%	95%	100%	99%	
Building Technologies & Solutions – 50% Applies to Messrs. Williams and Rushing						
EBIT Growth	1/3	6.5%	9.0%	12.5%	8.8%	127%
Revenue Growth	1/3	4.0%	5.0%	7.0%	5.1%	
Adjusted Enterprise Free Cash Flow Conversion	1/3	90%	95%	100%	99%	

Strategic Modifier Metric	Performance Goal	Modifier %	Results	
Achievement of YOY Organic EBIT Margin Improvement	≥ 80 bps	+10%	70 bps	0%
	≤ 50 bps	-10%		
Achievement of YOY Secured Order Margin Improvement	≥ 90 bps	+10%	120 bps	10%
	≤ 60 bps	-10%		
Achievement of YOY Secured Orders	≥ 9%	+5%	5%	-5%
	≤ 6%	-5%		
	Total Strategic Modifier	**+/-25%**	**+5%**	

The table below summarizes the target award potential and actual payout amounts for Messrs. Oliver, Stief, Williams, Rushing and Donofrio for fiscal 2019 after applying the 1.05 strategic initiative performance modifier described above.

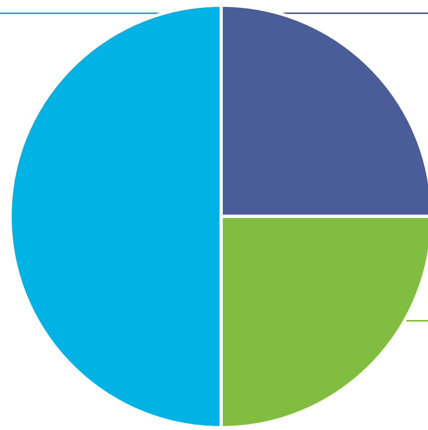
NEO	Target Opportunity (% salary)	Target Opportunity	Financial Payout Factor	Strategic Modifier	Total Payout Factor	Fiscal 2019 Annual Incentive Award
George R. Oliver	160%	$2,400,000	147%	1.05	154.35%	$3,704,400
Brian J. Stief	110%	$ 816,200	147%	1.05	154.35%	$1,259,805
Jeffrey Williams	90%	$ 667,800	137%	1.05	143.85%	$ 960,630
Rodney Rushing	90%	$ 630,000	137%	1.05	143.85%	$ 906,255
John Donofrio	90%	$ 630,000	147%	1.05	154.35%	$ 972,405

LONG-TERM EQUITY INCENTIVE AWARDS

Another key element in the compensation of our executive team is long-term equity incentive awards, which tie a significant portion of compensation to the Company's performance over time. In fiscal 2019, three different types of long-term incentive vehicles were granted to our NEOs:

Performance Share Units (50%)

- Vest subject to performance measured over three years
- Fiscal 2019 awards contingent on pre-tax earnings, pre-tax ROIC and relative TSR
- Dividends equivalents accrue and are paid in respect of the number of shares that ultimately vest



Share Options (25%)

- Only deliver value to the extent Johnson Controls' stock price increases relative to price at date of grant
- Vest 50% after two years and 50% after three year

Restricted Share Units (25%)

- Vest in equal installments over three years
- Dividends equivalents accrue and are paid on vested awards

In combination, we believe these grants provide a balanced focus on sustainable long-term shareholder value creation and retention of key executives in the interests of our collective stakeholders. They are also reflective of market practice within our compensation peer group. The total target grant value is established based on generally targeting the market 50th percentile.

FISCAL 2019 LONG-TERM EQUITY GRANT				
	VALUE OF SHARE OPTIONS	VALUE OF RSUs	VALUE OF PSUs	TOTAL TARGET VALUE OF AWARD
George R. Oliver	$2,375,000	$2,375,000	$4,750,000	$9,500,000
Brian J. Stief	$ 670,750	$ 670,750	$1,341,500	$2,683,000
Jeffrey Williams	$ 500,000	$ 500,000	$1,000,000	$2,000,000
John Donofrio	$ 500,000	$ 500,000	$1,000,000	$2,000,000
Rodney Rushing	$ 500,000	$ 500,000	$1,000,000	$2,000,000
Former NEOs				
William C. Jackson	$ 689,750	$ 689,750	$1,379,500	$2,759,000
Joseph Walicki	$ 658,000	$ 658,000	$1,316,000	$2,632,000

Fiscal 2019 Performance Share Units (PSUs)

PSUs help to ensure our executives' pay is directly linked to the achievement of strong, sustained long-term operating performance. The balance of metrics focuses senior leaders on making strategic investments that optimize long-term shareholder value.

In response to shareholder feedback, the Committee considered and approved several changes to the operation of PSUs for fiscal 2019. The 2019-2021 awards are subject to three independently weighted measures, with performance assessed over three cumulative years.

Metric, Weight and Definition	Weight	Why It Matters
Pre-tax earnings growth | Income before income taxes and foreign exchange, adjusted for certain significant special items, such as transaction/ integration/ separation costs, gain or loss on divestitures, impairment charges, restructuring costs mark-to-market adjustments related to restricted asbestos investments and pension and post retirement plans and the adoption of new accounting pronouncements, all as reflected in our audited financial statements that appear in our Annual Report on Form 10-K.	1/3	Aligns three-year organic pre-tax earnings growth resulting from the effective execution of our strategic operating plan to broadly comparable companies subject to similar external market and economic factors. Our ability to generate long-term profitability is critical to our growth and funding of operating activities.
Pre-tax ROIC | ROIC is income before income taxes and foreign exchange, adjusted for certain significant special items, such as transaction/ integration/ separation costs, gain or loss on divestitures, impairment charges, restructuring costs, mark-to-market adjustments related to restricted asbestos investments and pension and post retirement plans, and the adoption of new accounting pronouncements, all as reflected in an audited financial statement that appear in our Annual Report on Form 10-K, divided by pre-tax invested capital. Pre-tax invested capital is the monthly weighted average sum of shareholders equity plus total debt, less cash and income tax accounts, adjusted for acquisitions/ divestitures and other special items.	1/3	Establishes three-year pre-tax return on invested capital improvement targets resulting from the effective execution of our strategic operating plan and the efficient deployment of capital to enhance long-term shareholder value. Our ability to generate adequate returns on our investments is critical to our growth and funding of operating activities.
Relative TSR | Percentage change in Johnson Controls' share price over the performance period (with an adjustment for reinvestment of dividends) relative to S&P 500 Industrials. Share prices are averaged over 30 days at the start and end of the performance period.	1/3	Aligns Johnson Controls' three-year stock performance, including reinvestment of dividends, to broadly comparable companies with similar external market and economic factors. Investors recognize TSR as an appropriate measure to motivate executives and achieve alignment with shareholder interests.

The Committee set the earnings growth and ROIC thresholds, targets and maximums for the fiscal years 2019-2021 performance period based on Johnson Controls' long-term strategic plan, as well as consideration of long-term performance expectations for the S&P 500 Industrials. This approach ensures that we provide competitive incentive compensation based on market competitive performance while continuing to focus on our strategic long-term commitments. Given the commercial sensitivity of our long-term goals, the 2019 PSU performance goals will be disclosed at the conclusion of the three-year performance period.

		Fiscal 2019 Performance Goals		
Performance Metric	Weight	Threshold	Target	Maximum
Pre-tax Earnings Growth	1/3rd	The three-year performance goals associated with these measures will be disclosed at the conclusion of the performance period		
Pre-tax ROIC	1/3rd			
Relative TSR vs. S&P 500 Industrials	1/3rd	≥ 25th percentile	≥ 50th percentile	≥ 75th percentile

The payout opportunity in respect of each element is calculated separately and weighted to arrive at a final payout.

	Below Threshold	Threshold	Target	Maximum
Payout (% of Target)	0%	25%	100%	200%

The payout is calculated using interpolation between threshold and target, and target and maximum.

Fiscal 2018 and Fiscal 2017 Performance Share Units (PSUs)

Prior to the changes approved for fiscal 2019, PSU awards vest subject to pre-tax earnings growth and pre-tax ROIC, measured over three one-year periods, and a relative TSR modifier.

Fiscal 2018 PSUs

Performance Metric	Weight	Performance Period	Fiscal 2018 Performance Goals (2018-2020)			
			Threshold	Target	Maximum	Actual
Pre-Tax Earnings Growth	60%	2019	5.0%	9.2%	13.4%	16.3%
Pre-Tax ROIC	40%		+80 bps	+120 bps	+160 bps	+190 bps
TSR Relative Modifier vs S&P 500 Industrial Index	N/A	2018 - 2020	*To be assessed at the end of the performance cycle; subject to the same goals as described in respect of the Fiscal 2017 – 2019 grant below*			

With respect to fiscal year 2019 for FY 2018-2020 award, Pre-Tax Earnings Growth was 16.3% and Pre-Tax ROIC was +190 bps, which resulted in aggregate performance for fiscal year 2019 of 67% of weighted target performance, exclusive of the TSR Modifier.

Fiscal 2017 PSUs

Performance Metric	Weight	Performance Period	Fiscal 2017 Performance Goals (2017-2019)			
			Threshold	Target	Maximum	Actual
Pre-Tax Earnings Growth	70%	2019	3.0%	7.0%	15.5%	13.0%
Pre-Tax ROIC	30%		+120 bps	+160 bps	+200 bps	+200 bps
TSR Relative Modifier vs S&P 500 Industrial Index	N/A	2017 - 2019	< 25th percentile	25th – 75th percentile	> 75th percentile	25th percentile

With respect to fiscal year 2019 for the FY 2017-2019 award Pre-Tax Earnings Growth was 13% and Pre-Tax ROIC was +200 bps, which resulted in aggregate performance for fiscal year 2019 of 60% of weighted target performance, exclusive of the TSR modifier.

Fiscal 2019 marked the final year of the three-year performance period for the fiscal 2017-2019 awards. Based on aggregate performance over the three-years, awards vested at 146% of target.

Fiscal Year	Annual Performance Factor	Annual Weighting	Weighted Performance
2017	126%	1/3	42%
2018	132%	1/3	44%
2019	180%	1/3	60%
		Total Payout Percentage	146%
		2017-2019 Relative TSR Modifier	1.0
		2017 – 2019 PSU Final Payout Percentage	146%

Fiscal 2019 Share Options and Restricted Share Units (RSUs)

By awarding share options and RSUs, we link long-term incentives directly to our share price. If our share price decreases, so does the value of the executive officer’s compensation. Share options and RSUs also help us maintain competitive compensation levels in the market and retain high-performing employees through multi-year vesting requirements.

We valued fiscal 2019 share options using a Black-Scholes valuation. Their strike price is equal to the closing price of our common shares on the date of the grant. Fifty percent of each share option award vests two years after the date of grant, and the other fifty percent vests three years after the date of grant. Share option vesting is subject to continued employment, with earlier vesting upon retirement, and share options have a ten-year exercise term. The Committee does not permit or engage in “backdating,” repricing or cash buyout of share options.

We value RSUs based on the closing price of our shares at the date of grant. RSUs generally vest in equal installments over three years.

Additional Information

OTHER EXECUTIVE COMPENSATION POLICIES

To further ensure the alignment of executive interests with those of our shareholders, the Committee has approved additional compensation-related policies that apply to our NEOs.

SHARE OWNERSHIP GUIDELINES

NEOs are required to hold specified amounts of Johnson Controls shares. If an executive does not meet the minimum guideline within five years, they cannot sell any shares until they meet the requirement. Until the guideline is met, executives are required to retain after-tax shares resulting from an exercise of share options and must retain shares resulting from the vesting of restricted share units and performance share units. All shares directly or indirectly owned by, and restricted share units granted to, NEOs count towards the requirement. Share options do not count. At the end of fiscal 2019, all NEOs were in compliance with their ownership requirements, demonstrating the strong alignment of interests between our NEOs and Johnson Controls’ stakeholders.

Role	Minimum Ownership Requirement (% base salary)
Chairman & Chief Executive Officer	600%
All Other NEOs (excludes former NEOs)	300%

COMPENSATION RECOUPMENT POLICY

Our recoupment policy provides that following any accounting restatement, in addition to any other remedies available to it and subject to applicable law, if the Board or any Committee of the Board determines that any annual or other incentive payment received by an executive officer resulted from any financial result or operating metric that was impacted by the executive officer’s fraudulent or illegal conduct, the Board or a Board Committee could recover from the executive officer that compensation it considered appropriate under the circumstances. The Board has the sole discretion to make any and all determinations under this policy. The Committee continues to monitor trends and developments with respect to incentive compensation recoupment policies.

INSIDER TRADING, ANTI-HEDGING AND ANTI-PLEDGING POLICY

Employees may not buy, sell or engage in other transactions in the Company’s shares while aware of material non-public information; buy or sell securities of other companies while aware of material non-public information about those companies that they became aware of as a result of business dealings between the Company and those companies; disclose material non-public information to any unauthorized persons outside of the Company; or engage short sales or hedging transactions through puts, calls, or any other derivative securities involving the Company’s securities. The policy also restricts trading for a limited group of Company employees (including executives and directors) to defined window periods that follow our quarterly earnings releases. In addition, the Company’s directors and executive officers are prohibited from pledging any Company securities held by them or their families as security for a loan, including by holding such securities in a margin account.

EXECUTIVE BENEFITS AND PERQUISITES

401(k) Plan

All U.S. employees are eligible for the 401(k) plan, including our NEOs. Participants can contribute up to a specified percentage of their compensation on a pre-tax basis; however, executive officers’ percentages may be lower than other participants due to IRS requirements applicable to the 401(k) plan.

Based on Company performance, we matched 100% of each dollar an employee contributes up to 4% of the employee’s eligible pay, and 50% of each additional dollar up to a total of 6% of the employee’s eligible pay. In addition, the Company makes a varied annual retirement contribution for eligible employees. This group of employees includes all NEOs. The contribution for this group of employees was between 1% and 5% of the participant’s eligible compensation, based on the participant’s age and participation or service. Both the matching contribution and the annual retirement contribution are subject to vesting requirements.

Prior to the Merger, legacy Johnson Controls also maintained a pension plan, which covered all U.S. salaried employees hired before January 1, 2006. This plan was frozen on December 31, 2014, and employees no longer accrue future pension benefits under this plan. Mr. Williams and Mr. Rushing are the only NEOs who participate in the plan.

Retirement Restoration Plan

The Internal Revenue Code limits the benefits we can provide to employees under the 401(k) plan, including the annual retirement contribution. Thus, we sponsor the Retirement Restoration Plan, which allows all employees whose annual retirement contributions are affected by these Internal Revenue Code limits to receive the full intended amount of the additional annual retirement contributions without regard to such limits. All employees whose annual retirement contributions under the 401(k) plan are limited, including NEOs, are eligible for the Retirement Restoration Plan. Prior to January 1, 2018, the Retirement Restoration Plan also provided for 401(k) spillover deferrals and employer matching contributions for eligible participants. Those benefits were eliminated as of January 1, 2018 for participants other than those participants who were officers of the Company immediately following the Merger including our NEOs, Messrs. Oliver, Stief, Jackson and Williams and certain other high-level employees who participated in the Retirement Restoration Plan prior to the Merger.

Executive Deferred Compensation Plan and Senior Executive Deferred Compensation Plan

Prior to January 1, 2018, we maintained the Executive Deferred Compensation Plan, which assisted all senior leaders, including NEOs, with personal financial planning by allowing participants to defer compensation and associated taxes until retirement or termination of employment. It also assisted senior leaders in the management of their executive share ownership requirements. Investment options in the Executive Deferred Compensation Plan mirrored investment options available in our 401(k) Plan.

As of January 1, 2018, to integrate our plans following the Merger, we froze the Executive Deferred Compensation Plan and adopted a new Senior Executive Deferred Compensation Plan. The new Senior Executive Deferred Compensation Plan allows participants, including our NEOs, to defer base salary and annual bonus compensation and the associated taxes until retirement or termination of employment to assist such participants with personal financial planning. The investment options under the new Senior Executive Deferred Compensation Plan continue to mirror investment options in our 401(k) Plan.

PERQUISITES

We provide a limited amount of perquisites to our executive officers which we believe are reasonable and consistent with market practice. We maintain a strict policy regarding eligibility and use of these benefits. The Committee grants each executive officer a perquisite allowance of 5% of base salary annually. Upon termination, any unused funds are forfeited. Allowable perquisites include:

- Financial and tax planning
- Personal use of corporate aircraft capped at $10,000 per year for the NEOs, excluding the CEO, with such amounts calculated pursuant to the Standard Industry Fare level, or SIFL rate
- Executive physical

Effective fiscal 2019, private club dues are no longer eligible for reimbursement under the perquisite allowance and unused allowance will not carry over. The CEO is encouraged to use the corporate aircraft for both business and personal use to enhance his productivity, maintain confidentiality and ensure personal security.

EXECUTIVE SEVERANCE AND CHANGE-IN-CONTROL POLICY

In response to shareholder concerns and in connection with a review the Company's various executive compensation programs, in December 2017, the Committee revised and updated the Company's Executive Severance and Change-in-Control Policy to better reflect market practice and to facilitate the transition from legacy change-in-control agreements to a unified policy. The following policy applies to all NEOs, except Mr. Stief. In connection with a retention award made to Mr. Stief in September 2017, Mr. Stief terminated his change-in-control agreement and agreed to not be covered by the Company's Severance and Change-in-Control Policy.

	Change-In-Control	Severance
Triggers	■ Involuntary termination other than for Cause, permanent disability or death within the period beginning 60 days prior to and ending two years following a change-in-control ■ Good reason resignation within the same period	■ Involuntary termination other than for Cause, permanent disability or death ■ Good reason resignation
Cash Severance	Base salary + target annual bonus	
Severance Multiple	CEO: 3X Other NEOs: 2X	CEO: 2X Other NEOs: 1.5X
Claims Release	Required	
Benefits Continuation	Aligned with severance multiple	
Equity Acceleration	■ Committee to provide either for adjustment/assumption of award or a cash settlement ■ Pro-rated equity acceleration based on number of days worked during vesting period upon a subsequent termination without cause or with good reason within two years after the transaction (pro-rated PSUs based on target performance)	■ Pro-rated equity acceleration based on number of days worked during vesting period (pro-rated PSUs based on actual performance earned at vesting)
Excise Tax Gross-Up	None	
Restrictive Covenants	■ Unlimited time for non-disparagement, trade secrets and confidential information ■ Two-year post-termination non-solicitation of employees and customers ■ One and one-half year post-termination non-compete ■ Employee must affirmatively consent to be bound by these covenants as a condition of plan participation	

EXECUTIVE DEPARTURES IN FISCAL 2019

Messrs. Jackson and Walicki were both subject to legacy change-in-control employment agreements that provided for severance benefits in the event of a qualifying termination such as that experienced in fiscal 2019, which was within 36 months of the merger.

The Committee approved payments in-line with their contractual agreements, representing the last of their kind with all of our NEOs now subject to the change-in-control and severance policies described above. In summary, the terms provided for:

- A lump sum severance payment equal to three times the executive officer's annual cash compensation, which includes the executive officer's annual base salary and the greater of (a) the average of the executive officer's annualized annual cash bonuses and long-term performance awards for the three fiscal years preceding the change-in-control, or (b) the sum of the annual cash bonus and long-term performance award for the most recently completed fiscal year (such greater amount, "average performance bonus");

- Payment of a pro rata portion of the executive officer's average performance bonus

The Committee was aware that shareholders were uncomfortable with the nature of these legacy agreements. Accordingly, when there was the opportunity to exercise discretion, the Committee did so with this in mind. The Company was not required to make annual incentive payments in respect of performance during fiscal 2019, and so the Committee resolved that no payments would be made.

GLOBAL EXECUTIVE ASSIGNMENT AGREEMENT

In March 2017, Mr. Williams accepted the officer position of Vice President & President, EMEA & Latin America – Building Technologies and Solutions. This new role required Mr. Williams to relocate from the United States to the United Kingdom for the duration of his three-year assignment, and in connection with this move Mr. Williams' entered into a global assignment agreement that is substantially consistent with the policy applicable to all Johnson Controls employees, which is designed to ameliorate the increased costs associated with global assignments. The agreement includes an allowance to offset the difference in costs of living, a relocation allowance, furnished housing, reimbursement for certain dependent visitation costs, tax equalization in accordance with the Johnson Controls Tax Equalization Policy, a club membership in the United Kingdom and reimbursement of repatriation costs such as travel, temporary housing and car rental and the shipment of goods.

TAX AND ACCOUNTING CONSIDERATIONS

When determining total direct compensation packages, the Committee considers all factors that may have an impact on our financial performance, including tax and accounting rules.

Section 162(m) of the Internal Revenue Code limits the tax deductibility of compensation that we pay to certain covered employees, generally including our NEOs, to $1 million in any year per person.

Prior to fiscal 2019, this limitation did not apply to performance-based compensation if certain conditions were met and did not apply to compensation paid to our Chief Financial Officer, who was not considered a covered employee. Beginning in fiscal 2019, because of changes made to Section 162(m) by the Tax Cuts and Jobs Act, performance-based compensation is generally subject to the $1 million limit in the same way as other compensation, and the covered employees for any fiscal year include any person who served as our Chief Executive Officer or Chief Financial Officer at any point during the fiscal year, any other person whose compensation was otherwise required to be included in our proxy statement by reason of being among the three highest compensated officers for the fiscal year and any other person who was a covered employee for any fiscal year beginning after December 31, 2016.

Qualifying compensation that we pay under a binding contract that was in effect on November 2, 2017 and that is not materially modified after that date will continue to be exempt from the deduction limit under a transition rule.

Our compensation philosophy strongly emphasizes performance-based compensation for our executive officers, which historically minimized the consequences of the Section 162(m) limit on deductibility. Regardless, the Committee believed and continues to believe that the tax deduction limitation should not compromise its ability to design and maintain executive compensation arrangements necessary to attract and retain strong executive talent. Accordingly, achieving the desired flexibility in the design and delivery of compensation may result in compensation that in certain cases is not deductible for federal income tax purposes, particularly given the changes to Section 162(m).

EXECUTIVE COMPENSATION

The Compensation Committee has reviewed and discussed with management this Compensation Discussion & Analysis and, based on such review and discussion, has recommended to the Board of Directors that the Compensation Discussion & Analysis be included in the Company's 2019 Annual Report on Form 10-K and this Proxy Statement.

Submitted by the Compensation Committee:

Michael E. Daniels, Chair
Jean Blackwell
Roy Dunbar
Mark Vergnano

Executive Compensation Tables

The following table summarizes the compensation earned by our named executive officers in the fiscal years noted.

Summary Compensation Table for Fiscal Years 2019, 2018, and 2017

Name and Principal Position (a)	Year ($) (b)	Salary ($)[1] (c)	Bonus ($) (d)	Stock/Unit Awards ($)[2] (e)	Option Awards ($)[2] (f)	Non-Equity Incentive Plan Compensation ($)[3] (g)	Change in Pension Value and Non-Qualified Deferred Compensation Earnings ($)[4] (h)	All Other Compensation ($)[5] (i)	Total ($) (j)
George Oliver Chairman & Chief Executive Officer	2019	1,500,000	—	7,124,992	2,374,998	3,704,400	—	772,247	15,476,637
	2018	1,500,000	—	7,124,963	2,374,997	3,864,000	—	529,908	15,393,868
	2017	1,250,000	—	6,187,444	2,359,750	2,449,142	—	346,169	12,592,506
Brian J. Stief Vice Chairman & Chief Financial Officer	2019	742,000	—	2,012,215	670,747	1,259,805	—	224,568	4,909,335
	2018	742,000	—	2,012,210	670,744	1,314,084	—	334,324	5,073,362
	2017	742,000	—	22,012,083	670,473	1,102,892	—	276,604	24,804,052
Jeffrey M. Williams VP & President — Global Products, Building Technologies and Solutions	2019	742,000	—	1,499,979	500,000	960,630	288,674	378,279	4,369,562
	2018	742,000	—	1,499,967	499,993	1,102,037	—	875,453	4,719,450
	2017	742,000	—	1,583,425	416,327	761,935	34,504	604,647	4,142,838
Rodney M. Rushing VP & President — North America, Building Technologies & Solutions	2019	700,000	—	1,499,979	500,000	906,255	243,600	204,883	4,054,717
John Donofrio EVP, General Counsel	2019	700,000	—	1,499,979	500,000	972,405	—	168,081	3,840,465
	2018	615,152	500,000	3,999,948	499,993	845,250		78,684	6,539,027
Former Officers									
William C. Jackson[6] VP & President — Global Products, Building Technologies and Solutions and Corporate Strategy	2019	730,585	—	2,069,212	689,746	—	—	15,409,355	18,898,898
	2018	848,000	—	2,069,221	689,744	1,259,474	—	367,819	5,234,258
	2017	848,000	—	2,069,205	689,467	797,069	—	263,026	4,666,767
Joseph A. Walicki[7] VP & President — Power Solutions	2019	421,167	—	1,973,950	657,998	—	79,014	12,728,476	15,860,605
	2018	722,000	—	1,973,953	657,998	885,518	—	190,559	4,430,027
	2017	722,000	—	1,935,434	657,730	875,607	23,484	238,900	4,453,155

(1) ***Deferred Amounts Included***: We have not reduced amounts that we show to reflect a named executive officer's election, if any, to defer the receipt of compensation into our qualified and nonqualified deferred compensation plans.

(2) ***Stock/Unit Awards and Option Awards***: The amounts reflect the fair value of equity awards granted in fiscal 2019, 2018, and 2017. The equity awards granted in fiscal 2019 to each named executive officer consisted of share options, restricted share units ("RSUs") and performance share units ("PSUs"). The amounts in columns (e) and (f) represent the fair value of the entire amount of the award calculated in accordance with Financial Accounting Standards Board ASC Topic 718, excluding the effect of estimated forfeitures. For share options, amounts are computed by multiplying the fair value of the award (as determined under the Black-Scholes option pricing model) by the total number of options granted. For RSUs, fair value is computed by multiplying the total number of shares subject to the award by the closing market price of our ordinary shares on the date of grant. For PSUs, fair value is based on a model that considers the closing market price of our ordinary shares on the date of grant, the range of shares subject to such stock award, and the estimated probabilities of vesting outcomes. The value of PSUs included in the table assumes target performance. The values of the PSUs at the grant date if the highest level of performance conditions were to be achieved would be as follows: Mr. Oliver — $9,499,989; Mr. Stief — $2,682,953; Mr. Williams — $1,999,994; Mr. Rushing — $1,999,994 Mr. Donofrio — $1,999,994, Mr. Jackson — $2,758,948 and Mr. Walicki — $2,631,933. Footnote 12 to our audited financial statements for the fiscal year ended September 30, 2019, which appears in our Annual Report on Form 10-K that we filed with the Securities and Exchange Commission on November 21, 2019, includes assumptions that we used in the calculation of the equity award values.

(3) ***Non-Equity Incentive Plan Compensation***: The amounts reported in column (g) for each named executive officer reflect annual cash incentive compensation. Messrs. Jackson and Walicki did not receive any annual cash incentive compensation for fiscal 2019 due to their separations from employment prior to the end of the fiscal year.

(4) ***Change In Pension Value***: The amounts reported in column (h) generally reflect the actuarial change in the present value of benefits under the qualified defined benefit pension plan established by Johnson Controls, determined as of the measurement dates used for financial statement reporting purposes for the fiscal year indicated and using interest rate and mortality rate assumptions consistent with those reflected in our audited financial statements for the fiscal year indicated. The value that an executive will actually receive under the plan will differ to the extent facts and circumstances vary from what the calculations assume. Changes in the present value of the named executive officer's benefits are the result of the assumptions applied (as discussed in the footnotes to the "Pension Benefits as of September 30, 2019" table below). No named executive officer received preferential or above market earnings on nonqualified deferred compensation.

(5) ***All Other Compensation***: The fiscal 2019 amounts reported in column (i) for each named executive officer consist of the following:

Named Executive	Personal Use of Company Aircraft[a]	Expatriate & Relocation Benefits[b]	Tax Gross-Up[c]	Retirement Plan Contributions[d]	Company Vehicle[e]	Financial Planning[f]	Cash Severance Payments[g]	Total All Other Compensation[h]
George Oliver	217,986	—	—	536,400	17,861	—	—	772,247
Brian J. Stief	—	—	—	205,608	14,267	4,693	—	224,568
Jeffrey M. Williams	—	110,744	9,151	221,284	—	37,100	—	378,279
Rodney M. Rushing	—	—	7,000	168,314	5,674	23,895	—	204,883
John Donofrio	—	—	—	118,370	14,711	35,000	—	168,081
William C. Jackson	—	—	—	189,673	14,565	—	15,205,117	15,409,355
Joseph A. Walicki	—	—	—	176,827	4,615	4,400	12,542,634	12,728,476

a) The Summary Compensation Table reflects the aggregate incremental pre-tax cost to us for personal use of aircraft for fiscal 2019, which was calculated using a method that takes into account the incremental cost of fuel, trip-related maintenance, crew travel expenses, on-board catering, landing fees, trip-related hangar/parking costs and other variable costs. Because our aircraft are used primarily for business travel, the calculation does not include the fixed costs that do not change based on usage, such as pilots' salaries, the acquisition costs of our owned or leased aircraft, and the cost of maintenance not related to trips.

(b) Mr. Williams received the relocation benefits set forth below as part of his expatriate assignment set forth below.

	Housing	Relocation	Vehicle	Other Expatriate Benefits & Allowances	Total
Jeffrey M. Williams	79,101	8,393	16,083	7,166	110,744

(c) The amount shown for Mr. Williams represents tax equalization payments made to him in connection with his expatriate assignment disclosed in the preceding footnote. The amount shown for Mr. Rushing represents a tax gross-up payment made with respect to the historical expatriate assignment benefits provided in an earlier fiscal year.

(d) Retirement plan contributions include matching contributions made on behalf of each executive to the Company's tax-qualified 401(k) plans and Retirement Restoration Plan.

(e) Amounts reflect costs attributable to the personal use of a vehicle.

(f) Amounts reflect payments with respect to financial planning for Messrs. Stief, Williams, Rushing, Donofrio and Walicki.

(g) Amount reflects cash severance in connection with Messrs. Jackson's and Walicki's separation from employment. The cash severance amount was subject to a 6-month delay pursuant to Code Section 409A and will be paid to Mr. Jackson in February 2020 and was paid to Mr. Walicki in October 2019.

(6) Mr. Jackson resigned effective as of August 9, 2019.

(7) Mr. Walicki left employment with Johnson Controls in connection with the disposition of its Power Solutions business effective April 30, 2019.

Fiscal 2019 Grants of Plan-Based Awards Table

The following table summarizes cash-based and equity-based awards for each of the named executive officers that were granted in fiscal 2019.

		Estimated Future Payouts Under Non-Equity Incentive Plan Awards			Estimated Future Payouts Under Equity Incentive Plan Awards						
Name (a)	Grant Date (b)	Threshold ($)(c)(1)	Target ($)(d)(1)	Maximum ($)(e)(1)	Threshold (#)(f)(2)	Target (#)(g)(2)	Maximum (#)(h)(2)	All Other Stock Awards: Number of Shares of Stock (#) (i)(3)	All Other Option Awards: Number of Securities Underlying Options (#) (j)(4)	Exercise or Base Price of Option Awards ($/Share) (k)(5)	Grant Date Fair Value of Stock and Option Awards ($)(l)(6)
George Oliver	N/A(7)	400,000	2,400,000	4,800,000							
	12/6/2018								427,158	33.39	2,374,998
	12/6/2018							71,129			2,374,997
	12/6/2018				28,452	142,258	284,516				4,749,995
Brian J. Stief	N/A(7)	136,033	816,200	1,632,400							
	12/6/2018								120,638	33.39	670,747
	12/6/2018							20,088			670,738
	12/6/2018				8,035	40,176	80,352				1,341,477
Jeffrey M. Williams	N/A(7)	111,300	667,800	1,335,600							
	12/6/2018								89,928	33.39	500,000
	12/6/2018							14,974			499,982
	12/6/2018				5,990	29,949	59,898				999,997
Rodney M. Rushing	N/A(7)	111,300	667,800	1,335,600							
	12/6/2018								89,928	33.39	500,000
	12/6/2018							14,974			499,982
	12/6/2018				5,990	29,949	59,898				999,997
John Donofrio	N/A(7)	105,000	630,000	1,260,000							
	12/6/2018								89,928	33.39	500,000
	12/6/2018							14,974			499,982
	12/6/2018				5,990	29,949	59,898				999,997
Former Officers											
William C. Jackson	N/A(7)	127,200	763,200	1,526,400							
	12/6/2018								124,055	33.39	689,746
	12/6/2018							20,657			689,737
	12/6/2018				8,263	41,314	82,628				1,379,474
Joseph A. Walicki	N/A(7)	108,300	649,800	1,299,600							
	12/6/2018								118,345	33.39	657,998
	12/6/2018							19,706			657,983
	12/6/2018				7,882	39,412	78,824				1,315,967

(1) Amounts reported in columns (c) through (e) represent the range of potential cash payments under the annual performance bonuses that could have been earned under the Johnson Controls Annual Incentive Performance Program for fiscal 2019, as described above under the heading “Annual Incentive Performance Program (AIPP),” in the Compensation Discussion & Analysis. Threshold amounts assume minimum performance levels are achieved with respect to each performance measure.

(2) Amounts in columns (f) through (h) show the range of potential share payouts for the PSUs granted to our named executive officers assuming that threshold, target and maximum performance conditions are achieved as described in the section titled “Long-Term Incentive Performance Program” in the Compensation Discussion & Analysis. The number of PSUs that are earned, if any, will be based on performance for fiscal years 2019 to 2021 and will be determined after the close of fiscal 2021.

(3) Amounts in column (i) show the value of the RSUs granted to the named executive officers in December 2018 as described in the section titled “Long-Term Incentive Performance Program” in the Compensation Discussion & Analysis. These awards vest in equal installments over three years.

(4) Amounts in column (j) show the value of the share options granted for fiscal 2019, as described above under the heading “Long-Term Equity Incentive Awards” in the Compensation Discussion & Analysis. The share options vest 50% on the second anniversary of the grant date and 50% on the third anniversary of the grant date, contingent on the named executive officer’s continued employment, and expire, at the latest, on the tenth anniversary of the grant date.

(5) Share options were granted with an exercise price per share equal to the closing market price of our ordinary shares on the date of grant.

(6) Amounts in column (l) show the grant date fair value of the option awards, RSUs and PSUs granted to the named executive officers. These amounts represent the fair value of the entire amount of the award calculated in accordance with Financial Accounting Standards Board ASC Topic 718 (ASC Topic 718), excluding the effect of estimated forfeitures. For grants of share options, amounts are computed by multiplying the fair value of the award (as determined under the Black-Scholes option pricing model) by the total number of options granted. For grants of RSUs, fair value is computed by multiplying the total number of shares subject to the award by the closing market price of our ordinary shares on the date of grant. For grants of PSUs, the reported fair value assumes achievement of target performance, which is the probable outcome of performance conditions and is consistent with the estimate of aggregate compensation cost to be recognized over the service period.

(7) The award reflected in this row is an annual incentive performance award that we granted for the performance period of fiscal 2019, the material terms of which we describe in the Compensation Discussion & Analysis section titled “Annual Incentive Performance Program.”

Outstanding Equity Awards at 2019 Fiscal Year-End Table

The following table shows, for each of the named executive officers, all equity awards that were outstanding as of September 30, 2019. Dollar amounts are based on the NYSE closing price of $43.89 per share for our ordinary shares on September 30, 2019.

	Option Awards				Stock Awards			
Name (a)	Number of Securities Underlying Unexercised Options (#) Exercisable (b)	Number of Securities Underlying Unexercised Options (#) Unexercisable[1] (c)	Option Exercise Price ($) (d)	Option Expiration Date (e)	Number of Shares of Stock That Have Not Vested (#)[2] (f)	Market Value of Shares of Stock that Have not Vested ($) (g)	Equity Incentive plan Awards: Number of Unearned Shares, Units or Other Rights that have Not Vested (#)[3] (h)	Equity Incentive Plan Awards: Market or Payout Value of Unearned Shares, Units or Other Rights that have Not Vested ($) (i)
George Oliver					135,210	5,934,367	557,114	24,451,733
	166,523	—	17.79	10/12/2020				
	140,097	—	21.14	10/12/2021				
	176,718	—	26.19	11/20/2022				
	353,542	—	26.19	11/20/2022				
	309,996	—	35.86	11/20/2023				
	331,846	—	41.86	11/25/2024				
	355,701	118,567	34.82	10/12/2025				
	124,497	124,497	41.73	10/7/2026				
	—	336,879	37.36	12/7/2027				
	—	427,158	33.39	12/6/2028				
Brian J. Stief					461,257	20,244,570	374,665	16,444,047
	15,577	—	44.57	11/19/2023				
	34,920	—	46.29	11/18/2024				
	49,519	—	40.42	10/7/2025				
	40,487	40,488	41.73	10/7/2026				
	—	95,141	37.36	12/7/2027				
	—	120,638	33.39	12/6/2028				
Jeffrey M. Williams					31,206	1,369,632	116,047	5,093,304
	19,196	—	44.57	11/19/2023				
	20,952	—	46.29	11/18/2024				
	6,437	—	42.67	1/5/2025				
	33,343	—	40.42	10/7/2025				
	25,140	25,141	41.73	10/7/2026				
		70,921	37.36	12/7/2027				
		89,928	33.39	12/6/2028				

	Option Awards				Stock Awards			
Name (a)	Number of Securities Underlying Unexercised Options (#) Exercisable (b)	Number of Securities Underlying Unexercised Options (#) Unexercisable[1] (c)	Option Exercise Price ($) (d)	Option Expiration Date (e)	Number of Shares of Stock That Have Not Vested (#)[2] (f)	Market Value of Shares of Stock that Have not Vested ($) (g)	Equity Incentive plan Awards: Number of Unearned Shares, Units or Other Rights that have Not Vested (#)[3] (h)	Equity Incentive Plan Awards: Market or Payout Value of Unearned Shares, Units or Other Rights that have Not Vested ($) (i)
Rodney M. Rushing					23,346	1,024,657	91,087	3,997,809
	5,587	—	46.29	11/18/2024				
	8,252	—	40.42	10/7/2025				
	9,958	9,960	41.73	10/7/2026				
	—	49,964	37.36	12/7/2027				
	—	89,928	33.39	12/6/2028				
John Donofrio					71,624	3,143,578	86,920	3,814,919
		70,921	37.36	12/7/2027				
		89,928	33.39	12/6/2028				
Former Officers								
William C. Jackson					85,595	3,756,765	104,763	4,598,048
	93,337	—	26.30	10/7/2021				
	58,390	—	25.67	10/5/2022				
	44,445	—	44.57	11/19/2023				
	44,976	—	46.29	11/18/2024				
	54,223	—	40.42	10/7/2025				
	78,643	—	41.73	10/7/2026				
	54,353	—	37.36	12/7/2027				
	27,568	—	33.39	12/6/2028				
Joseph A. Walicki					48,486	2,128,051	—	—
	66,197	—	41.73	10/7/2026				

(1) Vesting information for each outstanding option award for the named executive officers is described in the table below.

Vesting Date	Exercise Price	George R. Oliver	Brian J. Stief	Jeffrey M. Williams	Rodney M. Rushing	John Donofrio
2019						
10/7/2019	$41.73	124,497	40,488	25,141	9,960	—
10/12/2019	$34.82	118,567	—	—	—	—
12/7/2019	$37.36	168,439	47,570	35,460	24,982	35,460
2020						
12/7/2020	$37.36	168,440	47,571	35,461	24,982	35,461
12/6/2020	$33.39	213,579	60,319	44,964	44,964	44,964
2021						
12/6/2021	$33.39	213,579	60,319	44,964	44,964	44,964

(2) The amounts in columns (f) and (g) reflect, for each named executive officer, the number and market value of RSUs which had been granted as of September 30, 2019, but which remained subject to additional vesting requirements. Scheduled vesting of all RSUs and the number of shares underlying awards, for each of the named executive officer is as follows:

Vesting Date	George R. Oliver	Brian J. Stief	Jeffrey M. Williams	Rodney M. Rushing	John Donofrio	William C. Jackson	Joseph A. Walicki
2019							
10/7/2019	17,947	5,824	3,617	1,433	—	—	—
10/30/2019	—	—	—	—	—	—	48,486
12/6/2019	24,224	6,841	5,099	5,099	5,099	—	—
12/7/2019	22,295	6,297	4,694	3,307	28,163	—	—
2020							
2/9/2020	—	—	—	—	—	85,595	
3/8/2020	—	—	2,903	—	—	—	—
9/14/2020	—	422,315	—	—	—	—	—
12/6/2020	24,224	6,841	5,099	5,099	5,099	—	—
12/7/2020	22,296	6,298	4,694	3,308	28,163	—	—
2021							
12/6/2021	24,224	6,841	5,100	5,100	5,100	—	—

(3) The amounts in columns (h) and (i) reflect, for each named executive officer, the number and market value of PSUs at maximum which had been granted as of September 30, 2019. The number of shares earned will depend upon actual performance relative to the applicable performance metrics at the end of the performance period. Scheduled vesting of all PSUs and the number of shares underlying awards at target for each of the named executive officers is as follows:

Vesting Date	George R. Oliver	Brian J. Stief	Jeffrey M. Williams	Rodney M. Rushing	John Donofrio	William C. Jackson
2019						
11/30/2019	144,234	46,906	29,127	20,811	—	45,556
2020						
12/7/2020	267,536	286,712	56,322	39,678	56,322	47,482
2021						
12/6/2021	145,344	41,047	30,598	30,598	30,598	11,725

Fiscal 2019 Option Exercises and Stock Vested Table

The following table shows, for each of the named executive officers, the amounts realized from options that were exercised and RSUs that vested during fiscal 2018.

	Option Awards		Stock Awards	
Name (a)	Number of Shares Acquired on Exercise (#) (b)	Value Realized on Exercise ($)(1) (c)	Number of Shares Acquired on Vesting (#) (d)	Value Realized on Vesting ($)(2) (e)
George Oliver	279,448	5,930,957	39,946	1,367,949
Brian J. Stief	98,763	1,207,282	179,491	7,157,290
Jeffrey M. Williams	108,748	1,720,737	155,210	6,260,158
Rodney M. Rushing	50,910	787,224	39,968	1,606,769
John Donofrio	—	—	27,559	900,077
Former Officers				
William C. Jackson	—	—	82,615	2,974,787
Joseph A. Walicki	99,995	910,954	142,675	5,228,630

(1) The amounts in column (c) represent the product of the number of shares acquired on exercise and the difference between the market price of the shares at the time of exercise and the exercise price of the options.

(2) The amounts in column (e) represent the product of the number of shares a named executive officer acquired on vesting and the closing market price of the shares on the vesting date, plus the value of dividend equivalents released, if any.

Pension Benefits as of September 30, 2019

The following table sets forth certain information with respect to the potential benefits to our named executive officers under the Johnson Controls qualified pension plan as of September 30, 2019. Messrs. Williams, Rushing and Walicki participate in the plan.

Name	Plan Name	Number of Years Credited Service (#)	Present Value of Accumulated Benefit ($)(1)
Jeffrey M. Williams	Johnson Controls Pension Plan	30.67	1,510,667
Rodney M. Rushing	Johnson Controls Pension Plan	24.67	1,055,068
Former Officers			
Joseph A. Walicki	Johnson Controls Pension Plan	26.25	976,325

(1) Amounts in this column reflect the following assumptions: A calculation date of September 30, 2019, a 2.95% discount rate for the Johnson Controls Pension Plan, retirement occurring at normal retirement age based on Social Security Normal Retirement Age minus three years, and applicability of the 2006 Static Mortality Table for Annuitants per Treasury Regulations Section 1.430(h)(3)-1(e), that we used for financial reporting purposes as of September 30, 2019. The valuation method used to determine the present value of the accumulated benefit is the same as the method we used for financial reporting purposes as of September 30, 2019. The value that an executive will actually receive under these benefits will differ to the extent facts and circumstances vary from what these calculations assume.

Johnson Controls Pension Plan. The Johnson Controls Pension Plan is a frozen defined benefit pension plan that provides benefits for most non-union U.S. employees hired before January 1, 2006, including Messrs. Williams, Rushing and Walicki. Because Messrs. Oliver, Stief, Jackson and Donofrio were employed by Johnson Controls after January 1, 2006, they are not participants in the Pension Plan. Subject to certain limitations that the Code imposes, the monthly retirement benefit payable under the Johnson Controls Pension Plan to participants, at normal retirement age in a single life annuity, is determined as follows:

- 1.15% of final average monthly compensation times years of benefit service, plus
- 0.55% of final average monthly compensation in excess of Social Security covered compensation times years of benefit service (up to 30 years)

Service after December 31, 2014 does not count as benefit service in this formula. For purposes of this formula, “final average monthly compensation” means a participant’s gross compensation, excluding certain unusual or non-recurring items of compensation, such as severance or moving expenses, for the highest five consecutive years of the last ten consecutive years of employment occurring prior to January 1, 2015. “Social Security covered compensation” means the average of the Social Security wage base for the 35 years preceding a participant’s normal retirement age. Normal retirement age for Johnson Controls Pension Plan participants is age 65.

Participants in the Johnson Controls Pension Plan generally become vested in their pension benefits upon completion of five years of service. The Pension Plan does not pay full pension benefits until after a participant terminates employment and reaches normal retirement age. However, a participant who terminates employment may elect to receive benefits at a reduced level at any time after age 55, as follows: If a participant terminates employment prior to age 55 and completing 10 years of service, then the reduction is 5% for each year that benefits begin before the participant’s Social Security retirement age; and if a participant terminates employment on or after age 55 and after completing 10 years of service, then the reduction is 5% for each year that benefits begin before the three years preceding the participant’s Social Security retirement age. Mr. Williams is currently eligible for early retirement under the Pension Plan.

Non-Qualified Deferred Compensation Table at Fiscal 2019 Year-End

The following table presents information on the non-qualified deferred compensation accounts of each named executive officer at September 30, 2019.

Name (a)	Executive Contributions in Last FY ($)[1] (b)	Registrant Contributions in Last FY ($)[2] (c)	Aggregate Earnings in Last FY ($)[3] (d)	Aggregate Withdrawals/ Distributions ($)[4] (e)	Aggregate Balance at Last FYE ($)[5] (f)
George Oliver	302,963	508,900	117,137	(317,202)	2,464,010
Brian J. Stief	4,760,326	178,108	879,434	—	9,722,410
Jeffrey M. Williams	26,693	188,284	45,320	—	872,806
Rodney M. Rushing	1,041,645	—	191,336	—	2,290,426
John Donofrio	74,946	99,287	13,604	—	202,978
Former Officers					
William C. Jackson	103,204	164,923	828,478	—	4,320,524
Joseph A. Walicki	63,961	146,577	2,579	(771,306)	—

(1) Amounts in column (b) include employee contributions under the Johnson Controls Executive Deferred Compensation Plan, Johnson Controls International plc Senior Executive Deferred Compensation Plan and the Johnson Controls International Retirement Restoration Plan. The Johnson Controls Executive Deferred Compensation Plan allowed participants to defer their annual bonuses, long-term performance share units and restricted share awards. The Johnson Controls International plc Senior Executive Deferred Compensation Plan allows participants to defer up to 50% of their annual base salary and 95% of their annual bonus compensation. The Retirement Restoration Plan allows executive officers to defer up to 6% of their compensation that is not eligible to be deferred into the Johnson Control 401(k) plan because of qualified plan limits that the Code imposes. All of the amounts shown in column (b) are also included in the Summary Compensation Table.

(2) Amounts in column (c) include employer contribution under the Retirement Restoration Plan. The Retirement Restoration Plan, also credits participants with an amount equal to the difference between the amount of retirement contributions made under the 401(k) plan and what such retirement contribution would have been without regard to the Code limits. All of the amounts shown in column (c) are also included in the Summary Compensation Table.

(3) The Aggregate Earnings reported in column (d) are not "above-market or preferential earnings" and therefore are not required to be reported in the Summary Compensation Table. The amounts in column (d) reflect all investment earnings, net of fees, on amounts that have been deferred under the Johnson Controls Deferred Compensation Plan and the Johnson Controls Retirement Restoration Plan. Investment earnings include any amounts relating to appreciation in the price of our ordinary shares, and negative amounts relating to depreciation in the price of our ordinary shares with respect to deferred amounts that consist of deferred share units, the value of which is tied to the value of our ordinary shares. In addition, for Mr. Oliver the amounts in column (d) also include earnings or (losses) on his notional account in the Tyco Supplemental Savings and Retirement Plan (the "Legacy Tyco SSRP"), a deferred compensation plan that, prior to the Merger, provided executives with the opportunity to elect to defer base salary and performance-based bonuses and receive tax-deferred market-based notional investment growth. The Legacy Tyco SSRP allowed executives to defer amounts above those permitted by Legacy Tyco's tax-qualified 401(k) Retirement Savings and Investment Plan (the "Legacy Tyco RSIP") as well as receive any employer contributions that were reduced under the Legacy Tyco RSIP due to IRS compensation limits. Effective January 1, 2018, the Legacy Tyco SSRP was frozen as to new participants and additional deferrals of compensation (subject to specified deferrals relating to the 2017 plan year). Investment options under the Johnson Controls nonqualified deferred compensation plans and Legacy Tyco SSRP include only funds that are available under Johnson Controls tax-qualified 401(k) retirement plans.

(4) The Aggregate Withdrawals reported in column (e) for Mr. Oliver consist of distributions under the Legacy Tyco SSRP, which allowed participants to elect in-service distributions that could commence after a minimum of five years of deferral. The Legacy Tyco SSRP permitted participants to elect to receive distributions in a single lump sum payment or in up to 15 annual installments. Distributions under the Legacy Tyco SSRP were required to commence upon retirement or other termination of employment. The Aggregate Transfer reported in column (e) for Mr. Walicki consists of the balance transfer from the Johnson Controls Retirement Restoration Plan to Clarios Retirement Restoration Plan.

Potential Payments upon Termination and Change-in-Control

The following table summarizes the severance and other enhanced benefits that would have been payable to the named executive officers upon termination of employment or upon the occurrence of a change-in-control subsequent to the Merger, assuming that the triggering event or events occurred on September 30, 2019. Equity award amounts are based on the closing share price of our ordinary shares of $43.89 on the NYSE on September 30, 2019.

The Johnson Controls Inc. and Tyco Merger was deemed to constitute a change-in-control under the change-in-control employment agreements and equity compensation plans maintained by Legacy Johnson Controls and under the Legacy Tyco Change-in-Control Severance Plan for Certain U.S. Officers and Executives (the “CIC Severance Plan”) and equity compensation plans, triggering certain enhanced benefits for a period following the Merger, as described in the footnotes below the following table. The hypothetical benefits shown below under the Change-in-Control columns reflect amounts that would have been payable in connection with a change-in-control subsequent to the Merger under the arrangements described below. The hypothetical benefits shown below under the “Other Terminations” columns reflect amounts that would have been payable under the various circumstances set forth taking into account the fact that the Merger is treated as a change-in-control under certain plans and agreements applicable to the named executive officers. The benefits received by Messrs. Jackson and Walicki in connection with their separations from employment with Johnson Controls prior to September 30, 2019 are discussed following the table.

	Change-in Control		Other Termination			
Name/form of Compensation (a)	Without Qualified Termination ($) (b)	With Qualified Termination ($) (c)	With Cause ($) (d)	Without Cause/ Good Reason Resignation ($) (e)	Voluntary Resignation/ Retirement ($)[6] (f)	Death or Disability ($) (g)
George Oliver						
Severance[1]	—	14,100,000	—	7,800,000	—	—
Benefit Continuation[2]	—	1,357,041	—	202,694	—	—
Accelerated Vesting of Equity Awards[3][4]	—	23,596,302	—	15,749,574	15,749,574	30,549,825
Brian J. Stief						
Severance[5]	—	—	—	—	—	—
Benefit Continuation	—	—	—	—	—	—
Accelerated Vesting of Equity Awards[3][4]	—	—	—	—	20,815,524	31,723,539
Jeffrey M. Williams						
Severance[1]	—	3,487,400	—	2,114,700	—	—
Benefit Continuation[2]	—	619,416	—	83,916	—	—
Accelerated Vesting of Equity Awards[3][4]	—	4,821,969	—	3,239,973	3,239,973	6,285,833
Rodney M. Rushing						
Severance[1]	—	3,290,000	—	1,995,000	—	—
Benefit Continuation[2]	—	553,524	—	85,968	—	—
Accelerated Vesting of Equity Awards[3]	—	3,836,246	—	2,436,401	—	5,156,011
John Donofrio						
Severance[1]	—	3,290,000	—	1,995,000	—	—
Benefit Continuation[2]	—	433,822	—	85,966	—	—
Accelerated Vesting of Equity Awards[3]	—	5,666,005	—	4,246,173	—	7,129,869

(1) Amounts shown include amounts that would have been payable under the Johnson Controls International plc Severance and Change-in-Control Policy for Officers upon a termination by us without cause or by the named executive officer with good reason or a termination due to death or disability, in each case on September 30, 2019. These amounts include: (a) a lump sum severance payment equal to three times for Mr. Oliver and two times for Messrs. Williams, Rushing and Donofrio the sum of annual base salary and target bonus amount; and (b) payment of a prorated portion of the target bonus amount for the year of termination. Termination for “cause” under the Johnson Controls International plc Severance and Change-in-Control Policy for Officers is defined generally as a termination of the executive officer’s employment by us due to the executive officer’s failure or refusal to perform the duties and responsibilities of his job,

violation of any fiduciary duty owed to us or our affiliates, conviction of, or entry of a plea of nolo contendere with respect to, specified crimes, dishonesty, theft, violation of our rules or policy, or other egregious or morally repugnant conduct that has, or could have, a serious and detrimental impact on us, our affiliates or our employees. Resignation by an executive officer for "good reason" is defined generally as a resignation within 60 days prior to or two years following a change-in-control caused by any of several specified adverse changes to his employment circumstances, including diminution of his authority, duties or responsibilities, a change of more than 50 miles in the geographic location at which the executive officer must perform services that extends the commute of the executive officer, reduction of the executive officer's base compensation or target incentive opportunities, or our failure to secure an assumption of our obligations under the Johnson Controls International plc Severance and Change-in-Control Policy for Officers.

(2) Amounts shown include: (a) in the event of a termination without cause or with good reason in connection with a change-in-control (i) the value of continued health plan coverage for thirty-six (36) months for Mr. Oliver and twenty-four (24) months for Messrs. Williams, Rushing and Donofrio (such period, the "benefits continuation period") and (ii) a cash payment equal to the amount of employer contributions would have accrued under retirement plans during the benefits continuation period; and (b) in the event of an involuntary termination without cause not in connection with a change-in-control, the value of continued health plan coverage for twenty-four (24) months for Mr. Oliver and eighteen (18) months for Messrs. Williams, Rushing and Donofrio. "Change-in-Control" under the Johnson Controls International plc Severance and Change-in-Control Policy for Officers is defined generally as certain persons becoming the beneficial owner of our securities representing more than 30% of the combined voting power of our then-outstanding securities; a change in the composition of a majority of our board of directors (excluding directors whose election or nomination was approved by at least 50% of the incumbent directors); the consummation of certain reorganizations, mergers, consolidations, sales or other dispositions of at least 80% of our assets; or approval by our shareholders of our complete liquidation or dissolution.

(3) Amounts represent the intrinsic value of unvested equity awards that would have vested upon the indicated triggering event for the named executive officers.

(4) For Messrs. Oliver, Stief, and Williams, who were retirement eligible under applicable plans as of September 30, 2019, the value of certain equity awards that would vest on an accelerated basis upon retirement is presented in the table above in column (f). The value of certain equity awards that would continue to vest according to their original vesting schedule upon retirement is not included.

(5) In connection with receiving his retention RSU/PSU award, Mr. Stief agreed to waive any severance benefits he would be entitled to receive under his employment agreement or any company severance policy.

(6) A voluntary resignation is a resignation without good reason as defined under applicable agreements and plans.

As noted above, Messrs. Oliver, Stief and Williams were retirement eligible under applicable plans as of September 30, 2019. For Messrs. Oliver, Stief and Williams, upon the executive's retirement:

i. we are not obligated to pay severance;

ii. with respect to equity awards granted prior to the Merger or in relation to the Merger;
   - for Mr. Oliver, the terms of the equity awards granted prior to September 2, 2016 generally provide that if he were to retire at least one year following the grant of such award, the applicable award would accelerate and vest pro rata based on the number of full months of service completed since the grant date of the award;

iii. with respect to equity awards granted after September 2, 2016:
   - for Mr. Oliver's fiscal 2017 and fiscal 2018 share option awards and all of Mr. Stief's share option awards, any such awards that were granted to the executive that were outstanding for at least one full calendar year after the year of grant would accelerate so that all of the options would be exercisable in full (and the executive would forfeit all other options that have not been outstanding for at least one full calendar year after the date of grant);
   - for Mr. Oliver's fiscal 2017 and fiscal 2018 restricted share or RSU awards and all of Mr. Stief's restricted share or RSU awards, (A) for certain awards, the executive would retain his restricted shares and RSUs that had not vested at the time of retirement, and they would continue to vest on the normal vesting schedule, and (B) for certain awards granted to Mr. Stief in 2017, he would either fully vest in the award or forfeit the award;
   - for Mr. Oliver's fiscal 2019 share option and RSU awards and all of Mr. Williams's with respect to share options and RSU awards, the applicable award would accelerate and vest pro rata based on the number of full months of service completed since the grant date of the award; and
   - for PSUs, the executive would earn the units that he held at retirement based on actual performance at the end of the performance period, but the amount would be pro-rated based on the number of full months' employment during the performance period.

In addition, Mr. Williams would be eligible to receive pension benefits upon retirement. For an estimate of the value of these pension benefits, please see the table above titled "Pension Benefits As of September 30, 2019."

As previously disclosed, Mr. Jackson resigned effective as of August 9, 2019. Mr. Jackson's resignation constituted a "good reason" termination for purposes of his existing change-in-control agreement with us, entitling him to the benefits provided by that agreement. The benefits Mr. Jackson received included (a) a lump sum severance payment equal to three times his annual cash compensation, which included his annual base salary and the greater of (i) the average of his annualized annual cash bonuses and long-term performance awards for the three fiscal years preceding the change-in-control, or (ii) the sum of the annual cash bonuses and long-term performance awards for the most recently completed fiscal year (such greater amount, “average performance bonus”); and (b) payment of a pro rata portion of his average performance bonus for the year of the termination. These amounts totaled $15,205,117 for Mr. Jackson. The cash severance amount was subject to a 6-month delay pursuant to Code Section 409A and will be paid to him in February 2020. Mr. Jackson also received accelerated or continued vesting of his outstanding equity-based awards pursuant to their existing terms. The estimated intrinsic value of that accelerated or continued vesting was $6,978,802, calculating using a share price of $42.31, which was the closing price on the date of Mr. Jackson’s resignation.

Mr. Walicki’s employment with Johnson Controls ended in connection with the disposition of its Power Solutions business effective April 30, 2019. As a result of Mr. Walicki’s termination of employment, he became entitled under his existing employment arrangements with Johnson Controls to a cash severance payment of $12,542,634. The cash severance amount was subject to a 6-month delay pursuant to Code Section 409A and was paid to him in October 2019. He also received accelerated or continued vesting was $4,158,212, calculating using a share price of $37.50, which was the closing price on the date of Mr. Walicki’s termination of employment.

CEO Pay Ratio

The ratio of our median employee's total compensation to our CEO's total compensation (the "CEO Pay Ratio") is a reasonable estimate calculated in a manner consistent with Item 402(u) of Regulation S-K. Due to the flexibility afforded by Item 402(u) in calculating the CEO Pay Ratio, the ratio may not be comparable to CEO pay ratios presented by other companies.

We identified our median paid employee using a global employee population of 98,975 as of July 1, 2019, representing employees in over 64 countries. This includes 59,274 non-U.S. employees. As part of our methodology, and in compliance with the pay ratio rule under Item 402(u), we employed the de minimis exemption for non-U.S. employees and excluded all employees in 8 countries totaling 4,954 employees (approximately 4.77% of our total workforce of 103,929). Employees in the following countries were excluded:

- Poland 112
- Indonesia 119
- Philippines 141
- Egypt 150
- Russia 147
- Thailand 384
- Turkey 543
- Japan 3,358

In addition, for employees with insufficient compensation data we assumed that such employee was paid the same as the lowest level employee within that employee's jurisdiction. This impacted approximately 2,261 of our employees.

As a result, the population used to identify our median employee included 98,975 of our 103,929 employees. For purposes of identifying our median employee, we considered the base salary and annual cash incentive. Base salary and annual cash incentive were chosen because (i) they represent the principal forms of compensation delivered to all employees and (ii) this information is readily available in each country. Pay was annualized for employees who worked a partial year between July 1, 2018, and June 30, 2019. Foreign currencies were converted into U.S. dollars as of July 1, 2019, based on the average daily spot rates during July 2019.

In accordance with the requirements of the Summary Compensation Table, we calculated the median paid employee's compensation. Based on such calculation, our median employee's total compensation was $41,987, while our CEO's compensation was $15,476,638. Accordingly, our CEO Pay Ratio was 369:1.

The Annual General Meeting Questions and Answers

The following questions and answers are intended to address briefly some commonly asked questions regarding the Annual General Meeting. These questions and answers may not address all questions that may be important to you. For more information, please refer to the more detailed information contained elsewhere in this proxy statement, including the documents referred to or incorporated by reference herein. For instructions on obtaining the documents incorporated by reference, see “Where You Can Find More Information.”

Why did I receive this Proxy statement?

We have sent this notice of Annual General Meeting and proxy statement, together with the enclosed proxy card or voting instruction card, because our Board of Directors is soliciting your proxy to vote at the Annual General Meeting on March 4, 2020. This proxy statement contains information about the items being voted on at the Annual General Meeting and important information about Johnson Controls. Our 2019 Annual Report on Form 10-K, which includes our consolidated financial statements for the fiscal year ended September 30, 2019 (the “Annual Report”), is enclosed with these materials.

Who is entitled to vote?

Each holder of Johnson Controls ordinary shares in our register of shareholders (such owners are often referred to as “shareholders of record,” “record holders” or “registered shareholders”) as of the close of business on January 2, 2020, the record date for the Annual General Meeting, is entitled to attend and vote at the Annual General Meeting. On January 2, 2020, there were 763,826,726 ordinary shares outstanding and entitled to vote at the Annual General Meeting. Any Johnson Controls shareholder of record as of the record date who does not receive notice of the Annual General Meeting and proxy statement, together with the enclosed proxy card or voting instruction card and the Annual Report, may obtain a copy at the Annual General Meeting or by contacting Johnson Controls at +353-21-423-5000.

We have requested that banks, brokerage firms and other nominees who hold ordinary shares on behalf of the owners of the ordinary shares (such owners are often referred to as “beneficial shareholders” or “street name holders”) as of the close of business on January 2, 2020 forward these materials, together with a proxy card or voting instruction card, to such beneficial shareholders. Johnson Controls has agreed to pay the reasonable expenses of the banks, brokerage firms and other nominees for forwarding these materials.

Finally, Johnson Controls has provided for these materials to be sent to persons who have interests in its ordinary shares through participation in Johnson Controls’ retirement savings plans. These individuals are not eligible to vote directly at the Annual General Meeting. They may, however, instruct the trustees of these plans how to vote the ordinary shares represented by their interests. The enclosed proxy card will also serve as voting instructions for the trustees of the plans.

How many votes do I have?

Every holder of an ordinary share on the record date will be entitled to one vote per share for each matter presented at the Annual General Meeting. Because each Director’s election is the subject of a separate resolution, every holder of an ordinary share on the record date will be entitled to one vote per share for each separate Director election resolution.

What is the difference between holding shares as a shareholder of record and as a beneficial owner?

Most of our shareholders hold their shares through a stockbroker, bank or other nominee rather than directly in their own name. As summarized below, there are some differences between shares held of record and those owned beneficially.

Shareholder of Record

If your shares are registered directly in your name in our share register operated by our transfer agent, EQ Shareowner Services, you are considered the shareholder of record with respect to those shares and these proxy materials are being sent to you directly by us. As the shareholder of record, you have the right to grant your voting proxy to the persons named in the proxy card (see "*How Do I Appoint and Vote via a Proxy?*" below), or to grant a written proxy to any other person, which person does not need to be a shareholder, or to attend and vote in person at the Annual General Meeting. We have enclosed a proxy card for you to use in which you can elect to appoint certain officers of the Company named therein as your proxy.

Beneficial Owner

If your shares are held in a stock brokerage account or by a bank or other nominee, you are considered the beneficial owner of shares held in "street name," and these proxy materials are being forwarded to you by your bank, broker or other nominee who is considered, with respect to those shares, the shareholder of record. As the beneficial owner, you have the right to direct your bank, broker or other nominee on how to vote your shares and are also invited to attend the Annual General Meeting. However, since you are not the shareholder of record, you may only vote these shares in person at the Annual General Meeting if you follow the instructions described below under "*Admission to the Annual General Meeting*" and "*How do I vote?*" Your bank, broker or other nominee has enclosed a voting instruction card for you to use in directing your bank, broker or other nominee as to how to vote your shares, which may contain instructions for voting by telephone or electronically.

How do I vote?

A proxy card is being sent to each shareholder of record as of the record date. If you hold your shares in the name of a bank, broker or other nominee, you should follow the instructions provided by your bank, broker or nominee when voting your shares. Otherwise, you can vote in the following ways:

- ***By Mail:*** If you are a holder of record, you can vote by marking, dating and signing the appropriate proxy card and returning it by mail in the enclosed postage-paid envelope. If you beneficially own your ordinary shares, you can vote by following the instructions on your voting instruction card.
- ***By Internet or Telephone:*** You can vote over the Internet at www.proxyvote.com by following the instructions on the proxy card or the voting instruction card or in the Notice of Internet availability of proxy materials previously sent to you. If you are not a holder of record, you can vote using a touchtone telephone by calling 1-800-454-8683.
- ***At the Annual General Meeting:*** If you are planning to attend the Annual General Meeting and wish to vote your ordinary shares in person, we will give you a ballot at the meeting. Shareholders who own their shares in "street name" are not able to vote at the Annual General Meeting unless they have a proxy, executed in their favor, from the holder of record of their shares.

Even if you plan to be present at the Annual General Meeting, we encourage you to complete and mail the enclosed card to vote your ordinary shares by proxy. Telephone and Internet voting facilities for shareholders will be available 24 hours a day and will close at 11:59 p.m., Eastern Standard Time, on March 3, 2020.

How do I appoint and vote via a proxy?

If you properly fill in your proxy card appointing an officer of the Company as your proxy and send it to us in time to vote, your proxy, meaning one of the individuals named on your proxy card, will vote your shares as you have directed. You may also grant a written proxy to any other person by filling in the proxy card and identifying the person, which person does not need to be a shareholder, or attend and vote in person at the Annual General Meeting. If you sign the proxy card but do not make specific choices, your proxy will vote your shares as recommended by the Board of Directors "FOR" each Director and "FOR" each of the agenda items listed below.

If a new agenda item or a new motion or proposal for an existing agenda item is presented at the Annual General Meeting, the Company officer acting as your proxy will vote in accordance with the recommendation of our Board of Directors. At the time we began printing this proxy statement, we knew of no matters that needed to be acted on at the Annual General Meeting other than those discussed in this proxy statement.

Whether or not you plan to attend the Annual General Meeting, we urge you to submit your proxy. Returning the proxy card or submitting your vote electronically will not affect your right to attend the Annual General Meeting. You must return your proxy cards by the times and dates set forth below under "Returning Your Proxy Card" in order for your vote to be counted.

What if I return my proxy or voting instruction card but do not mark it to show how I am voting?

Your shares will be voted according to the specific instructions you have indicated on your proxy or voting instruction card. If you sign and return your proxy or voting instruction card but do not indicate specific instructions for voting, you instruct the proxy to vote your shares, “FOR” each Director and “FOR” all other proposals. For any other matter which may properly come before the Annual General Meeting, and any adjournment or postponement thereof, you instruct, by submitting proxies with blank voting instructions, the proxy to vote in accordance with the recommendation of the Board of Directors.

May I change or revoke my vote after I return my proxy or voting instruction card?

You may change your vote before it is exercised by:

- Submitting subsequent voting instructions through the telephone or Internet; if you previously voted by telephone or the Internet;
- Submitting another proxy card (or voting instruction card if you beneficially own your ordinary shares) with a later date; or
- Voting in person at the Annual General Meeting if you are a holder of record or a beneficial owner with a proxy from the holder of record.

Your presence without voting at the meeting will not automatically revoke your proxy, and any revocation during the meeting will not affect votes previously taken. If you hold your shares in the name of a bank, broker or other nominee, you should follow the instructions provided by your bank, broker or nominee in revoking your previously granted proxy.

Delivery of Documents to Stockholders Sharing an Address

Securities and Exchange Commission rules allow us to deliver a single copy of an annual report and proxy statement to any household not participating in electronic proxy material delivery at which two or more shareholders reside, if we believe the shareholders are members of the same family (a practice called “householding”). We believe that householding benefits both you and the Company by eliminating duplicate mailings to shareholders living at the same address and by reducing our printing and mailing costs. Each shareholder will continue to receive a separate proxy card or voting instruction card.

Your household may have received a single set of proxy materials this year. If you prefer to receive your own copy now or in future years, please request a duplicate set by calling 1-800-579-1639, by going to www.proxyvote.com, by e-mailing sendmaterial@proxyvote.com, or by writing to Johnson Controls, c/o Broadridge, 51 Mercedes Way, Edgewood, NY 11717. Alternatively, if your household received multiple sets of proxy materials this year, and members of your household who are entitled to receive proxy materials would all prefer to receive only a single set of proxy materials, you may submit such a request as specified in the preceding sentence.

If a broker or other nominee holds your shares, you may continue to receive some duplicate mailings. Certain brokers will eliminate duplicate account mailings by allowing shareholders to consent to such elimination, or through implied consent if a shareholder does not request continuation of duplicate mailings. Since not all brokers and nominees may offer shareholders the opportunity this year to eliminate duplicate mailings, you may need to contact your broker or other nominee directly to discontinue duplicate mailings to your household.

What vote is required to approve each proposal at the Annual General Meeting?

Johnson Controls intends to present proposals numbered one through seven for shareholder consideration and voting at the Annual General Meeting. The vote required to approve each proposal is described below:

1. By separate resolutions, to elect the following individuals as Directors for a period of one year, expiring at the end of the Company’s Annual General Meeting of Shareholders in 2021:

   (a) Jean Blackwell
   (b) Pierre Cohade
   (c) Michael E. Daniels
   (d) Juan Pablo del Valle Perochena
   (e) W. Roy Dunbar
   (f) Gretchen R. Haggerty
   (g) Simone Menne
   (h) George R. Oliver
   (i) Jürgen Tinggren
   (j) Mark Vergnano
   (k) R. David Yost
   (l) John D. Young

   The election of each Director nominee requires the affirmative vote of a majority of the votes properly cast (in person or by proxy) at the Annual General Meeting.

2. To ratify the appointment of PricewaterhouseCoopers LLP as the independent auditors of the Company and to authorize the Audit Committee of the Board of Directors to set the auditors’ remuneration, which in each case, requires the affirmative vote of a majority of the votes properly cast (in person or by proxy) at the Annual General Meeting.

3. To authorize the Company and/or any subsidiary of the Company to make market purchases of Company shares, which requires the affirmative vote of a majority of the votes properly cast (in person or by proxy) at the Annual General Meeting.
4. To determine the price range at which the Company can re-allot shares that it holds as treasury shares (Special Resolution), which requires the affirmative vote of at least 75% of the votes properly cast (in person or by proxy) at the Annual General Meeting.
5. To approve, in a non-binding advisory vote, the compensation of the named executive officers, which will be considered approved with the affirmative vote of a majority of the votes properly cast (in person or by proxy) at the Annual General Meeting. The advisory vote on executive compensation is non-binding, meaning that our Board of Directors will not be obligated to take any compensation actions or to adjust our executive compensation programs or policies as a result of the vote.
6. To approve the authorization for the Board of Directors to issue shares up to 33% of its issued share capital, which requires the affirmative vote of a majority of the votes properly cast (in person or by proxy) at the Annual General Meeting.
7. To approve the authorization for the Board of Directors to issue shares for cash up to a maximum of approximately 5% of issued share capital (Special Resolution), which requires the affirmative vote of at least 75% of the votes properly cast (in person or by proxy) at the Annual General Meeting.

What is the quorum requirement for the Annual General Meeting?

In order to conduct any business at the Annual General Meeting, holders of a majority of Johnson Controls' ordinary shares which are outstanding and entitled to vote on the record date must be present in person or represented by valid proxies. This is called a quorum. Your shares will be counted for purposes of determining if there is a quorum, whether representing votes for, against or abstained, or broker non-votes, if you:

- are present and vote in person at the meeting;
- have voted by telephone or the Internet; OR
- you have submitted a proxy card or voting instruction form by mail.

What is the effect of broker non-votes and abstentions?

Abstentions and broker non-votes are considered present for purposes of determining the presence of a quorum. Abstentions and broker non-votes will not be considered votes properly cast at the Annual General Meeting. Because the approval of all of the proposals is based on the votes properly cast at the Annual General Meeting, abstentions and broker non-votes will not have any effect on the outcome of voting on these proposals.

A broker non-vote occurs when a broker holding shares for a beneficial owner does not vote on a particular agenda item because the broker does not have discretionary voting power for that particular item and has not received instructions from the beneficial owner. Although brokers have discretionary power to vote your shares with respect to "routine" matters, they do not have discretionary power to vote your shares on "non-routine" matters pursuant to the rules of The New York Stock Exchange (the "NYSE"). We believe the following proposals will be considered non-routine under NYSE rules and therefore your broker will not be able to vote your shares with respect to these proposals unless the broker receives appropriate instructions from you: Proposal No. 1 (Election of Directors) and Proposal No. 5 (Advisory Vote on Executive Compensation). Your broker will not be able to vote your shares with respect to these proposals unless the broker receives appropriate instructions from you.

How will voting on any other business be conducted?

Other than matters incidental to the conduct of the Annual General Meeting and those set forth in this proxy statement, we do not know of any business or proposals to be considered at the Annual General Meeting. If any other business is proposed and properly presented at the Annual General Meeting, the proxy holders must vote in accordance with the instructions given by the shareholder. You may specifically instruct the proxy holder how to vote in such a situation. In the absence of specific instructions, by signing the proxy, you instruct the proxy holder to vote in accordance with the recommendations of the Board of Directors.

Important notice regarding the availability of proxy materials for the Annual General Meeting:

Our proxy statement for the Annual General Meeting and the form of proxy card are available at www.proxyvote.com.

As permitted by SEC rules, we are making this proxy statement available to our shareholders electronically via the Internet. On January 17, 2020, we first mailed to our shareholders a Notice containing instructions on how to access this proxy statement and vote online. If you received a Notice by mail, you will not receive a printed copy of the proxy materials in the mail. Instead, the Notice instructs you on how to access and review all of the important information contained in the proxy statement. The Notice also instructs you on how you may submit your proxy over the Internet. If you received a Notice by mail and would like to receive a printed copy of our proxy materials, you should follow the instructions for requesting such materials contained on the Notice.

Returning Your Proxy Card

Shareholders who are voting by mail should complete and return the proxy card as soon as possible. In order to assure that your proxy is received in time to be voted at the meeting, the proxy card must be completed in accordance with the instructions and received at one of the addresses set forth below by the dates and times specified:

Ireland:

By 5:00 p.m., local time, on March 3, 2020 by hand or mail at:

Johnson Controls International plc
One Albert Quay
Cork, Ireland

United States:

By 5:00 p.m., Eastern Standard Time, on March 3, 2020 by mail at:

Broadridge Financial Solutions
c/o Vote Processing
51 Mercedes Way
Edgewood, NY 11717

If your shares are held beneficially in “street name,” you should return your proxy card or voting instruction card in accordance with the instructions on that card or as provided by the bank, brokerage firm or other nominee who holds Johnson Controls shares on your behalf.

Admission to the Annual General Meeting

All shareholders are invited to attend the Annual General Meeting. For admission to the Annual General Meeting, shareholders of record should bring the admission ticket attached to the enclosed proxy card to the Registered Shareholders check-in area, where their ownership will be verified. Those who have beneficial ownership of shares held by a bank, brokerage firm or other nominee should come to the Beneficial Owners check-in area. Beneficial owners who wish to vote in person at the Annual General Meeting are requested to obtain a “legal proxy” executed in their favor, from their broker, bank, nominee or other custodian that authorizes you to vote the shares held by them on your behalf. In addition, you must bring to the Annual General Meeting an account statement or letter from the broker, bank or other nominee indicating that you are the owner of the shares. Registration will begin at 2:00 pm, local time, and the Annual General Meeting will begin at 3:00 pm, local time.

Johnson Controls Annual Report

The Johnson Controls International plc 2019 Annual Report on Form 10-K containing our audited consolidated financial statements with accompanying notes and schedules is available on the Company’s website in the Investor Relations Section at www.johnsoncontrols.com. Copies of these documents may be obtained without charge by contacting Johnson Controls by phone at +353-21-423-5000. Copies may also be obtained without charge by contacting Investor Relations in writing, or may be physically inspected at the offices of Johnson Controls International plc, One Albert Quay, Cork, Ireland.

Ordinary Share Price and Dividend Information

The shares of the Company's ordinary shares are traded on the New York Stock Exchange under the symbol "JCI."

Title of Class	Number of Record Holders as of December 31, 2019
Ordinary Shares, $0.01 par value	34,903

	Ordinary Shares Price Range		Dividends	
	FY 2019	FY 2018	FY 2019	FY 2018
First Quarter	$28.51 - 36.51	$35.73 - 42.41	$0.26	$0.26
Second Quarter	30.01 - 36.94	34.29 - 41.43	0.26	0.26
Third Quarter	35.81 - 41.31	33.26 - 36.72	0.26	0.26
Fourth Quarter	40.91 - 44.30	33.32 - 40.01	0.26	0.26
Year	$28.51 - 44.30	$33.26 - 42.41	$1.04	$1.04

Presentation of Irish Statutory Accounts

The Company's Irish Statutory Accounts for the fiscal year ended September 30, 2019, including the reports of the Directors and auditors thereon, will be presented at the Annual General Meeting. The Company's Irish Statutory Accounts have been approved by the Board of Directors of the Company. There is no requirement under Irish law that such statements be approved by shareholders, and no such approval will be sought at the Annual General Meeting. The Company's Irish Statutory Accounts, with the Non-Financial Disclosure Report, will be available at least 21 days before the date of the Annual General Meeting, along with the proxy statement, the Company's Annual Report on Form 10-K and other proxy materials at www.proxyvote.com, and in the Investor Relations section of the Company's website at www.johnsoncontrols.com.

Costs of Solicitation

We will pay the cost of solicitation of proxies. We have engaged Mackenzie Partners as the proxy solicitor for the Annual General Meeting for an approximate fee of $12,500, plus expenses. In addition to the use of the mail, certain of our Directors, officers or employees may solicit proxies by telephone or personal contact. Upon request, we will reimburse brokers, dealers, banks and trustees, or their nominees, for reasonable expenses incurred by them in forwarding proxy materials to beneficial owners of shares.

We are furnishing this proxy statement to our shareholders in connection with the solicitation of proxies by our Board of Directors for use at an Annual General Meeting of our shareholders. We are first mailing this proxy statement and the accompanying form of proxy to shareholders beginning on or about January 17, 2020.

Transfer Agent

Our transfer agent is EQ Shareowner Services. All communications concerning shareholders of record accounts, including address changes, name changes, common stock transfer requirements, and similar issues can be handled by contacting EQ Shareowner Services at 1-800-401-1952 (U.S.), 651-450-4064 (outside the U.S.), www.shareowneronline.com, or in writing, P.O. Box 64854, St. Paul, MN 55164-0854.

Shareholder Proposals for the 2021 Annual General Meeting

In accordance with the rules established by the SEC, as well as under the provisions of our Memorandum and Articles of Association, any shareholder proposal submitted pursuant to Rule 14a-8 under the Securities Exchange Act of 1934 (the "Exchange Act") intended for inclusion in the proxy statement for next year's Annual General Meeting must be received by Johnson Controls no later than September 19, 2020. Such proposals should be sent to our Secretary at our registered address, which is: One Albert Quay, Cork, Ireland. To be included in the proxy statement, the proposal must comply with the requirements as to form and substance established by the SEC and our Articles of Association, and must be a proper subject for shareholder action under applicable law. Any shareholder proposal that is not submitted for inclusion in the proxy statement but is instead sought to be presented directly at the 2020 Annual General Meeting must be received by the Secretary at the address listed above prior to December 3, 2020. Securities and Exchange Commission rules permit management to vote proxies in its discretion in certain cases if the shareholder does not comply with this deadline and in certain other cases notwithstanding the shareholder's compliance with this deadline.

New proposals or motions with regard to existing agenda items are not subject to such restrictions and can be made at the meeting by each shareholder attending or represented. Note that if specific voting instructions are not provided to the proxy, shareholders who submit a proxy card instruct the proxy to vote their shares in accordance with the recommendations of the Board of Directors with regard to the items appearing on the agenda.

Where You Can Find More Information

We file annual, quarterly and special reports, proxy statements and other information with the SEC. Our SEC filings are also available to the public at the SEC's website (www.sec.gov).

The SEC's website contains reports, proxy statements and other information regarding issuers, like us, that file electronically with the SEC. You may find our reports, proxy statements and other information at the SEC website. In addition, you can obtain reports and proxy statements and other information about us at the offices of the New York Stock Exchange, 20 Broad Street, New York, New York 10005.

We maintain a website on the Internet at www.johnsoncontrols.com. We make available free of charge, on or through our website, our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, current reports on Form 8-K and any amendments to those reports, as soon as reasonably practicable after such material is filed with the SEC. This reference to our Internet address is for informational purposes only and shall not, under any circumstances, be deemed to incorporate the information available at such Internet address into this proxy.

Security Ownership of Certain Beneficial Owners and Management

The following table sets forth the number of registered shares beneficially owned as of January 9, 2020 by each current Director, each Named Executive Officer and the Directors and Executive Officers of Johnson Controls as a group.

Beneficial Owner	Title	Number of Ordinary Shares Beneficially Owned(1)(2)	Pct of Class	Cash Settled Stock Units(3)
Jean Blackwell	Director	6,202	*	—
Pierre Cohade	Director	5,038	*	—
Michael E. Daniels	Director	69,778	*	—
Juan Pablo del Valle Perochena	Director	8,607	*	—
John Donofrio	Named Executive Officer	72,967	*	—
W. Roy Dunbar	Director	8,223	*	—
Gretchen R. Haggerty	Director	12,901	*	—
William Jackson	Former VP and President, Global Products and BT&S	455,935	*	—
Simone Menne	Director Nominee	6,662	*	—
George R. Oliver	Chairman and CEO	3,136,564	*	—
Rodney M. Rushing	Named Executive Officer	58,793	*	78,358
Brian Stief	Named Executive Officer	286,518	*	55,167
Jürgen Tinggren	Director	26,210	*	—
Mark Vergnano	Director	20,353	*	—
Joseph A. Walicki	Former VP and President, Power Solutions	70,780	*	—
Jeffrey M. Williams	Named Executive Officer	233,910	*	—
R. David Yost	Director	53,771	*	—
John D. Young	Director	7,248	*	—
All current Directors and Executive Officers as a group (24 persons)		4,631,408	*	—

* Less than 1.0%

(1) The number shown reflects the number of ordinary shares owned beneficially as of January 9, 2020, based on information furnished by the persons named, public filings and Johnson Control's records. A person is deemed to be a beneficial owner of ordinary shares if he or she, either alone or with others, has the power to vote or to dispose of those ordinary shares. Except as otherwise indicated below and subject to applicable community property laws, each owner has sole voting and sole investment authority with respect to the shares listed. To the extent indicated in the notes below, ordinary shares beneficially owned by a person include ordinary shares of which the person has the right to acquire beneficial ownership within 60 days after January 9, 2020. There were 762,780,601 Johnson Controls ordinary shares outstanding on such date.

(2) Includes the maximum number of shares for which these individuals can acquire beneficial ownership upon (i) the exercise of share options that are currently vested or will vest within 60 days of January 9, 2020 as follows: Mr. Donofrio, 35,461; Mr. Jackson, 455,935; Mr. Oliver, 2,268,216; Mr. Rushing, 58,739; Mr. Stief, 224,562; Mr. Walicki, 66,197; Mr. Williams, 165,670; and all executive officers as a group 3,321,468 and (ii) the vesting of RSUs that will vest within 60 days of January 9, 2020 as follows: Messrs. Cohade, Daniels, del Valle Perochena, Dunbar, Tinggren, Vergnano, Yost and Young, and Mses. Blackwell, Haggerty and Menne 4,431 RSUs; Mr. Williams 2,921 RSUs; and all Directors and Executive Officers as a group, 51,662 RSUs.

(3) Reflects ordinary share equivalents under deferred and equity based compensation plans. Each stock unit is intended to be the economic equivalent of one ordinary share of Johnson Controls International plc. Units are settled in the form of cash and are not settled in the form of ordinary shares. These amounts are not included in the amounts in the "Number of Ordinary Shares Beneficially Owned" column.

The following table sets forth the information indicated for persons or groups known to the Company to be beneficial owners of more than 5% of the outstanding ordinary shares.

Name and Address of Beneficial Owner	Number of Ordinary Shares Beneficially Owned	Percentage of Ordinary Shares Outstanding
Dodge & Cox, 555 California Street, 40th Floor, San Francisco, CA 94104	94,516,201(1)	11.88%
The Vanguard Group, 100 Vanguard Blvd., Malvern, PA 19355	70,231,428(2)	7.60%
BlackRock, Inc., 55 East 52nd Street, New York, NY 10055	47,114,635(3)	5.92%
The Capital Group Companies, Inc., 333 South Hope Street, Los Angeles, CA 90071	5,643,883(4)	5.00%

(1) Based solely on the information reported by Dodge & Cox in a Notification of Holdings under Irish law provided to the Company on October 9, 2019 and reporting ownership as of October 3, 2019, Dodge & Cox, together with its affiliates, held an interest in 94,516,201 ordinary shares.

(2) The amount shown for the number of ordinary shares over which The Vanguard Group exercised investment discretion was provided pursuant to the Schedule 13G/A filed February 11, 2019 with the SEC, indicating beneficial ownership as of December 31, 2018.

(3) Based solely on the information reported by BlackRock, Inc. in a Standard Form TR-1 under Article 12(1) of Directive 2004/109/EC and Article 11(3) of the Commission Directive 2007/14/EC provided to the Company on September 23, 2019 and reporting ownership as of September 20, 2019, BlackRock, Inc., together with its affiliates, held an interest in 47,114,635 ordinary shares.

(4) Based solely on the information reported by The Capital Group Companies, Inc. (the “Capital Group”) in a Notification of Holdings under Irish law provided to the Company on April 29, 2019 and reporting ownership as of April 26, 2019, the Capital Group, together with its affiliates, held an interest in 45,643,883 ordinary shares.

Section 16(A) Beneficial Ownership Reporting Compliance

Section 16(a) of the Securities Exchange Act of 1934 requires the Company’s Officers and Directors and persons who beneficially own more than 10% of Johnson Controls’ ordinary shares to file reports of ownership and changes in ownership of such ordinary shares with the SEC and NYSE. These persons are required by SEC regulations to furnish the Company with copies of all Section 16(a) forms they file. As a matter of practice, the Company’s administrative staff assists Officers and Directors in preparing initial reports of ownership and reports of changes in ownership and files those reports on their behalf. Based on the Company’s review of the copies of such forms it has received, as well as information provided and representations made by the reporting persons, Johnson Controls believes that all of its Officers, Directors and beneficial owners of more than 10% of its ordinary shares complied with Section 16(a) during the Company’s fiscal year ended September 30, 2019.

Annex I
Non-GAAP Reconciliations

This Proxy Statement contains financial information regarding adjusted earnings per share, which is a non-GAAP performance measure. The adjusting items include net mark-to-market adjustments, transaction/integration costs, restructuring and impairment costs, Scott Safety gain on sale, tax indemnification reserve release, environmental reserve, loss on extinguishment of debt, and discrete tax items. Financial information regarding organic sales, adjusted segment EBITA, adjusted organic segment EBITA, adjusted segment EBITA margin, adjusted free cash flow, adjusted free cash flow conversion and net debt are also presented, which are non-GAAP performance measures. Adjusted segment EBITA excludes special items such as transaction/integration costs, environmental reserve and Scott Safety gain on sale because these costs are not considered to be directly related to the underlying operating performance of its business units. Management believes that, when considered together with unadjusted amounts, these non-GAAP measures are useful to investors in understanding period-over-period operating results and business trends of the Company. Management may also use these metrics as guides in forecasting, budgeting and long-term planning processes and for compensation purposes. These metrics should be considered in addition to, and not as replacements for, the most comparable GAAP measure.

Diluted Earnings Per Share Reconciliation

	Net Income Attributable to JCI plc from Continuing Operations	
	Twelve Months Ended September 30,	
	2019	2018
Earnings per share as reported for JCI plc	$ 1.26	$ 1.26
Adjusting items:		
Transaction costs	0.01	0.02
Integration costs	0.35	0.23
Related tax impact	(0.04)	(0.03)
Scott Safety gain on sale	—	(0.12)
Related tax impact	—	0.03
Net mark-to-market adjustments	0.71	(0.03)
Related tax impact	(0.15)	—
Restructuring and impairment costs	0.27	0.27
Related tax impact	(0.06)	(0.04)
Tax indemnification reserve release	(0.26)	—
Environmental reserve	0.16	—
Related tax impact	(0.03)	—
Loss on extinguishment of debt	0.07	—
Discrete tax items	(0.32)	—
Adjusted earnings per share for JCI plc*	$ 1.96	$ 1.59

* May not sum due to rounding

Organic Adjusted Net Sales Growth Reconciliation

(in millions)	Net Sales for the Twelve Months Ended September 30, 2018	Base Year Adjustments - Acquisitions and Divestitures		Adjusted Base Net Sales for the Twelve Months Ended September 30, 2018	Foreign Currency		Organic Growth		Net Sales for the Twelve Months Ended September 30, 2019	
Building Solutions North America	$ 8,679	$ —	—	$ 8,679	$ (28)	—	$ 380	4%	$ 9,031	4%
Building Solutions EMEA/LA	3,696	—	—	3,696	(206)	-6%	165	4%	3,655	-1%
Building Solutions Asia Pacific	2,553	1	—	2,554	(86)	-3%	190	7%	2,658	4%
Total field	14,928	1	—	14,929	(320)	-2%	735	5%	15,344	3%
Global Products	8,472	(151)	-2%	8,321	(143)	-2%	446	5%	8,624	4%
Total net sales	$ 23,400	$(150)	-1%	$23,250	$(463)	-2%	$1,181	5%	$23,968	3%

Adjusted Free Cash Flow Reconciliation

(in billions)	Twelve Months Ended September 30, 2019
Cash provided by operating activities from continuing operations	$ 1.7
Capital expenditures	(0.6)
Reported free cash flow *	1.2
Adjusting items:	
Transaction/integration costs	0.3
Restructuring payments	0.1
Nonrecurring tax payments, net of refunds	0.1
Total adjusting items	0.5
Adjusted free cash flow	$ 1.7
Adjusted net income from continuing operations attributable to JCI	$ 1.7
Adjusted free cash flow conversion	99%

* May not sum due to rounding

Adjusted Net Income

The Company evaluates the performance of its business units primarily on segment earnings before interest, taxes and amortization (EBITA), which represents income from continuing operations before income taxes and noncontrolling interests, excluding general corporate expenses, intangible asset amortization, net financing charges, restructuring and impairment costs, and the net mark-to-market adjustments related to restricted asbestos investments and pension and postretirement plans. In the first quarter of fiscal 2019, the Company began reporting the Power Solutions business as a discontinued operation, which required retrospective application to previously reported financial information. As a result, the financial results shown below are for continuing operations and exclude the Power Solutions business.

(in millions; unaudited)	Twelve Months Ended September 30,			
	2019		2018	
	Actual	Adjusted Non-GAAP	Actual	Adjusted Non-GAAP
Net sales				
Building Solutions North America	$ 9,031	$ 9,031	$ 8,679	$ 8,679
Building Solutions EMEA/LA	3,655	3,655	3,696	3,696
Building Solutions Asia Pacific	2,658	2,658	2,553	2,553
Global Products	8,624	8,624	8,472	8,472
Net sales	$ 23,968	$ 23,968	$ 23,400	$ 23,400
Segment EBITA(1)				
Building Solutions North America	$ 1,153	$ 1,179	$ 1,109	$ 1,134
Building Solutions EMEA/LA	368	372	344	350
Building Solutions Asia Pacific	341	343	347	347
Global Products	1,179	1,349	1,338	1,251
Segment EBITA	3,041	3,243	3,138	3,082
Corporate expenses(2)	(405)	(376)	(584)	(416)
Amortization of intangible assets	(377)	(377)	(376)	(376)
Net mark-to-market adjustments(3)	(618)	—	24	—
Restructuring and impairment costs(4)	(235)	—	(255)	—
EBIT(5)	1,406	2,490	1,947	2,290
EBIT margin	5.9%	10.4%	8.3%	9.8%
Net financing charges(6)	(350)	(290)	(401)	(401)
Income from continuing operations before income taxes	1,056	2,200	1,546	1,889
Income tax benefit (provision)(7)	233	(297)	(197)	(229)
Income from continuing operations	1,289	1,903	1,349	1,660
Income from continuing operations attributable to noncontrolling interests	(189)	(193)	(174)	(174)
Net income from continuing operations attributable to JCI	$ 1,100	$ 1,710	$ 1,175	$ 1,486

(1) Financial information regarding adjusted segment EBITA and adjusted segment EBITA margins, which are non-GAAP performance measures. The Company's definition of adjusted segment EBITA excludes special items because these costs are not considered to be directly related to the underlying operating performance of its businesses. Management believes these non-GAAP measures are useful to investors in understanding the ongoing operations and business trends of the Company.

The following is the twelve months ended September 30, 2019 and 2018 reconciliation of segment EBITA and segment EBITA margin as reported to adjusted segment EBITA and adjusted segment EBITA margin (unaudited):

(in millions)	Building Solutions North America		Building Solutions EMEA/LA		Building Solutions Asia Pacific		Global Products		Consolidated JCI plc	
	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018
Segment EBITA as reported	$1,153	$1,109	$ 368	$344	$ 341	$ 347	$1,179	$1,338	$3,041	$3,138
Segment EBITA margin as reported	12.8%	12.8%	10.1%	9.3%	12.8%	13.6%	13.7%	15.8%	12.7%	13.4%
Adjusting items:										
Integration costs	26	25	4	6	2	—	30	27	62	58
Scott Safety gain on sale	—	—	—	—	—	—	—	(114)	—	(114)
Environmental reserve(8)	—	—	—	—	—	—	140	—	140	—
Adjusted segment EBITA	$1,179	$1,134	$ 372	$350	$ 343	$ 347	$1,349	$1,251	$3,243	$3,082
Adjusted segment EBITA margin	13.1%	13.1%	10.2%	9.5%	12.9%	13.6%	15.6%	14.8%	13.5%	13.2%

(2) Adjusted Corporate expenses for the twelve months ended September 30, 2019 excludes $244 million of integration costs and $11 million of transaction costs, partially offset by $226 million of income as a result of a tax indemnification reserve release. Adjusted Corporate expenses for the twelve months ended September 30, 2018 excludes $154 million of integration costs and $14 million of transaction costs.

(3) On October 1, 2018, the Company adopted Accounting Standards Update (ASU) No. 2016-01, “Financial Instruments—Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities.” ASU No. 2016-01 amends certain aspects of recognition, measurement, presentation and disclosure of financial instruments, including marketable securities. The new standard requires the mark-to-market of marketable securities investments previously recorded within accumulated other comprehensive income on the statement of financial position be recorded in the statement of income on a prospective basis beginning as of the adoption date. As these restricted investments do not relate to the underlying operating performance of its businesses, the Company’s definition of adjusted segment EBITA and adjusted EBIT excludes the mark-to-market adjustments effective October 1, 2018. The twelve months ended September 30, 2019 exclude the net mark-to-market adjustments on restricted investments and pension and postretirement plans of $618 million. The twelve months ended September 30, 2018 exclude the net mark-to-market adjustments on pension and postretirement plans of $24 million.

(4) Restructuring and impairment costs for the twelve months ended September 30, 2019 of $235 million are excluded from the adjusted non-GAAP results. Restructuring and impairment costs for the twelve months ended September 30, 2018 of $255 million are excluded from the adjusted non-GAAP results. The restructuring actions and impairment costs for the twelve months ended September 30, 2019 result from the impairment of a Global Products business classified as held for sale. The restructuring and impairment costs for the twelve months ended September 30, 2018 are related primarily to workforce reductions, plant closures and asset impairments in the Building Technologies & Solutions business and at Corporate.

(5) Management defines earnings before interest and taxes (EBIT) as income from continuing operations before net financing charges, income taxes and noncontrolling interests.

(6) Adjusted net financing charges for the twelve months ended September 30, 2019 exclude a loss on debt extinguishment of $60 million.

(7) Adjusted income tax provision for the twelve months ended September 30, 2019 excludes the tax benefits primarily related to tax audit reserve adjustments of $586 million, net mark-to-market adjustments of $130 million, restructuring and impairment charges of $53 million, integration costs of $34 million, an environmental reserve of $28 million and transaction costs of $1 million, partially offset by tax provisions primarily related to new U.S. tax regulations of $226 million and valuation allowance adjustments of $76 million as a result of changes in U.S. tax law. Adjusted income tax provision for the twelve months ended September 30, 2018 excludes the tax benefits for changes in entity tax status of $139 million, restructuring and impairment costs of $36 million, tax audit settlements of $25 million, integration costs of $24 million and transaction costs of $3 million, partially offset by net tax provisions related to the U.S. Tax Reform legislation of $108 million, valuation allowance adjustments of $56 million, Scott Safety gain on sale of $30 million and net mark-to-market adjustments of $1 million.

(8) An environmental charge for the twelve months ended September 30, 2019 of $140 million is excluded from the adjusted non-GAAP results. The $140 million is related to remediation efforts to be undertaken to address contamination at our facilities in Marinette, Wisconsin. A substantial portion of the reserve relates to the remediation of fire-fighting foams containing PFAS compounds at or near our Fire Technology Center in Marinette.

UNITED STATES SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 10-K

☑ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the Fiscal Year Ended September 30, 2019
OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For The Transition Period From ________ To ________
Commission File Number 001-13836

JOHNSON CONTROLS INTERNATIONAL PLC
(Exact name of registrant as specified in its charter)

Ireland	**98-0390500**
(Jurisdiction of Incorporation)	(I.R.S. Employer Identification No.)

One Albert Quay
Cork, Ireland, T12 X8N6
(Address of principal executive offices and postal code)
(353) 21-423-5000
(Registrant's telephone number)

Securities Registered Pursuant to Section 12(b) of the Exchange Act:

Title of Each Class	Trading Symbol	Name of Each Exchange on Which Registered
Ordinary Shares, Par Value $0.01	JCI	New York Stock Exchange

Securities Registered Pursuant to Section 12(g) of the Exchange Act: **None**

Indicate by check mark whether the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☑ No ☐

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Exchange Act. Yes ☐ No ☑

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Exchange Act during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☑ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☑ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	☑	Accelerated filer	☐
Non-accelerated filer	☐		
Emerging growth company	☐	Smaller reporting company	☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☑

As of March 31, 2019, the aggregate market value of Johnson Controls International plc Common Stock held by non-affiliates of the registrant was approximately $33.1 billion based on the closing sales price as reported on the New York Stock Exchange. As of October 31, 2019, 771,419,761 ordinary shares, par value $0.01 per share, were outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the definitive Proxy Statement to be delivered to shareholders in connection with the annual general meeting of shareholders to be held on March 4, 2020 are incorporated by reference into Part III.

JOHNSON CONTROLS INTERNATIONAL PLC

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CAUTIONARY STATEMENTS FOR FORWARD-LOOKING INFORMATION

Unless otherwise indicated, references to "Johnson Controls," the "Company," "we," "our" and "us" in this Annual Report on Form 10-K refer to Johnson Controls International plc and its consolidated subsidiaries.

The Company has made statements in this document that are forward-looking and therefore are subject to risks and uncertainties. All statements in this document other than statements of historical fact are, or could be, "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. In this document, statements regarding Johnson Controls' future financial position, sales, costs, earnings, cash flows, other measures of results of operations, synergies and integration opportunities, capital expenditures and debt levels are forward-looking statements. Words such as "may," "will," "expect," "intend," "estimate," "anticipate," "believe," "should," "forecast," "project" or "plan" and terms of similar meaning are also generally intended to identify forward-looking statements. However, the absence of these words does not mean that a statement is not forward-looking. Johnson Controls cautions that these statements are subject to numerous important risks, uncertainties, assumptions and other factors, some of which are beyond Johnson Controls' control, that could cause Johnson Controls' actual results to differ materially from those expressed or implied by such forward-looking statements, including, among others, risks related to: any delay or inability of Johnson Controls to realize the expected benefits and synergies of recent portfolio transactions such as the merger with Tyco, the spin-off of Adient and the disposition of the Power Solutions business, changes in tax laws (including but not limited to the recently enacted Tax Cuts and Jobs Act), regulations, rates, policies or interpretations, the loss of key senior management, the tax treatment of recent portfolio transactions, significant transaction costs and/or unknown liabilities associated with such transactions, the outcome of actual or potential litigation relating to such transactions, the risk that disruptions from recent transactions will harm Johnson Controls' business, the strength of the U.S. or other economies, changes to laws or policies governing foreign trade, including increased tariffs or trade restrictions, mix and schedules, energy and commodity prices, the availability of raw materials and component products, currency rates and cancellation of or changes to commercial arrangements. A detailed discussion of risks related to Johnson Controls' business is included in the section entitled "Risk Factors" (refer to Part I, Item 1A, of this Annual Report on Form 10-K). The forward-looking statements included in this document are made only as of the date of this document, unless otherwise specified, and, except as required by law, Johnson Controls assumes no obligation, and disclaims any obligation, to update such statements to reflect events or circumstances occurring after the date of this document.

PART I

ITEM 1 BUSINESS

General

Johnson Controls International plc, headquartered in Cork, Ireland, is a global diversified technology and multi industrial leader serving a wide range of customers in more than 150 countries. The Company creates intelligent buildings, efficient energy solutions and integrated infrastructure that work seamlessly together to deliver on the promise of smart cities and communities. The Company is committed to helping its customers win and creating greater value for all of its stakeholders through its strategic focus on buildings.

Johnson Controls was originally incorporated in the state of Wisconsin in 1885 as Johnson Electric Service Company to manufacture, install and service automatic temperature regulation systems for buildings. The Company was renamed to Johnson Controls, Inc. in 1974. In 2005, the Company acquired York International, a global supplier of heating, ventilating, air-conditioning ("HVAC") and refrigeration equipment and services. In 2014, the Company acquired Air Distribution Technologies, Inc., one of the largest independent providers of air distribution and ventilation products in North America. In 2015, the Company formed a joint venture with Hitachi to expand its building related product offerings. In 2016, Johnson Controls, Inc. and Tyco completed their combination (the "Merger"). Following the Merger, Tyco changed its name to "Johnson Controls International plc."

On November 13, 2018, the Company entered into a Stock and Asset Purchase Agreement ("Purchase Agreement") with BCP Acquisitions LLC ("Purchaser"). The Purchaser is a newly-formed entity controlled by investment funds managed by Brookfield Capital Partners LLC. Pursuant to the Purchase Agreement, on the terms and subject to the conditions therein, the Company agreed to sell, and Purchaser agreed to acquire, the Company's Power Solutions business for a purchase price of $13.2 billion. The transaction closed on April 30, 2019 with net cash proceeds of $11.6 billion after tax and transaction-related expenses.

During the first quarter of fiscal 2019, the Company determined that its Power Solutions business met the criteria to be classified as a discontinued operation and, as a result, Power Solutions' historical financial results are reflected in the Company's consolidated financial statements as a discontinued operation, and assets and liabilities were retrospectively reclassified as assets and liabilities held for sale.

The Company is a global market leader in engineering, developing, manufacturing and installing building products and systems around the world, including HVAC equipment, HVAC controls, energy-management systems, security systems, fire detection systems and fire suppression solutions. The Company further serves customers by providing technical services (in the HVAC, security and fire-protection space), energy-management consulting and data-driven solutions via its data-enabled business. Finally, the Company has a strong presence in the North American residential air conditioning and heating systems market and is a global market leader in industrial refrigeration products.

Products/Systems and Services

The Company sells its integrated control systems, security systems, fire-detection systems, equipment and services primarily through its extensive global network of sales and service offices, with operations in approximately 70 countries. Significant sales are also generated through global third-party channels, such as distributors of air-conditioning, security, fire-detection and commercial HVAC systems. The Company's large base of current customers leads to significant repeat business for the retrofit and replacement markets. In addition, the new commercial construction market is also important. Trusted Buildings brands, such as YORK®, Hitachi Air Conditioning, *Metasys*®, Ansul, *Ruskin*®, Titus®, Frick®, PENN®, Sabroe®, Simplex® and Grinnell® give the Company the most diverse portfolio in the building technology industry.

In fiscal 2019, approximately 26% of its sales originated from its service offerings.

Competition

The Company conducts its operations through thousands of individual contracts that are either negotiated or awarded on a competitive basis. Key factors in the award of contracts include system and service performance, quality, price, design, reputation, technology, application engineering capability and construction or project management expertise. Competitors for HVAC equipment, security, fire-detection, fire suppression and controls in the residential and non-residential marketplace include many regional, national and international providers; larger competitors include Honeywell International, Inc.; Siemens Building Technologies, an operating group of Siemens AG; Schneider Electric SA; Carrier Corporation, a subsidiary of United Technologies Corporation; Trane Incorporated, a subsidiary of Ingersoll-Rand Public Limited Company; Daikin Industries, Ltd.; Lennox International, Inc.; GC Midea Holding Co, Ltd. and Gree Electric Appliances, Inc. In addition to HVAC equipment, the Company competes in a highly fragmented HVAC services market, which is dominated by local providers. The loss of any individual contract would not have a material adverse effect on the Company.

Backlog

The Company's backlog is applicable to its sales of systems and services. At September 30, 2019, the backlog was $9.2 billion, of which $8.9 billion is attributable to the field business. The backlog amount outstanding at any given time is not necessarily indicative of the amount of revenue to be earned in the upcoming fiscal year.

In the first quarter of fiscal 2019, the Company adopted Accounting Standards Codification ("ASC") 606, "Revenue from Contracts with Customers," and as a result is required to disclose remaining performance obligations. At September 30, 2019, remaining performance obligations were $14.4 billion, which is $5.2 billion higher than the Company's backlog of $9.2 billion. Differences between the Company's remaining performance obligations and backlog are primarily due to:

- Remaining performance obligations include large, multi-purpose contracts to construct hospitals, schools and other governmental buildings, which are services to be performed over the building's lifetime with initial contract terms of 25 to 35 years for the entire term of the contract versus backlog which includes only the lifecycle period of these contracts which approximates five years;
- The Company has elected to exclude from remaining performance obligations certain contracts with customers with a term of one year or less or contracts that are cancelable without substantial penalty while these contracts are included within backlog; and
- Remaining performance obligations include the full remaining term of service contracts with substantial termination penalties versus backlog which includes one year for all outstanding service contracts.

The Company will continue to report backlog as it believes it is a useful measure of evaluating the Company's operational performance and relationship to total orders.

Raw Materials

Raw materials used by the businesses in connection with their operations, including steel, aluminum, brass, copper, polypropylene and certain flurochemicals used in fire suppression agents, were readily available during fiscal 2019, and the Company expects such availability to continue. In fiscal 2020, commodity prices could fluctuate throughout the year and could significantly affect the results of operations.

Intellectual Property

Generally, the Company seeks statutory protection for strategic or financially important intellectual property developed in connection with its business. Certain intellectual property, where appropriate, is protected by contracts, licenses, confidentiality or other agreements.

The Company owns numerous U.S. and non-U.S. patents (and their respective counterparts), the more important of which cover those technologies and inventions embodied in current products or which are used in the manufacture of those products. While the Company believes patents are important to its business operations and in the aggregate constitute a valuable asset, no single patent, or group of patents, is critical to the success of the business. The Company, from time to time, grants licenses under its patents and technology and receives licenses under patents and technology of others.

The Company's trademarks, certain of which are material to its business, are registered or otherwise legally protected in the U.S. and many non-U.S. countries where products and services of the Company are sold. The Company, from time to time, becomes involved in trademark licensing transactions.

Most works of authorship produced for the Company, such as computer programs, catalogs and sales literature, carry appropriate notices indicating the Company's claim to copyright protection under U.S. law and appropriate international treaties.

Environmental, Health and Safety Matters

Laws addressing the protection of the environment (environmental laws) and workers' safety and health (worker safety laws) govern the Company's ongoing global operations. They generally provide for civil and criminal penalties, as well as injunctive and remedial relief, for noncompliance or require remediation of sites where Company-related materials have been released into the environment.

The Company has expended substantial resources globally, both financial and managerial, to comply with environmental laws and worker safety laws and maintains procedures designed to foster and ensure compliance. Certain of the Company's businesses are, or have been, engaged in the handling or use of substances that may impact workplace health and safety or the environment. The Company is committed to protecting its workers and the environment against the risks associated with these substances.

The Company's operations and facilities have been, and in the future may become, the subject of formal or informal enforcement actions or proceedings for noncompliance with environmental laws and worker safety laws or for the remediation of Company-related substances released into the environment. Such matters typically are resolved with regulatory authorities through commitments to compliance, abatement or remediation programs and, in some cases, payment of penalties. See Note 22, "Commitments and Contingencies," of the notes to consolidated financial statements for further discussion of environmental matters.

Environmental Capital Expenditures

The Company's ongoing environmental compliance program often results in capital expenditures. Environmental considerations are a part of all significant capital expenditure decisions; however, expenditures in fiscal 2019 related solely to environmental compliance were not material. It is management's opinion that the amount of any future capital expenditures related solely to environmental compliance will not have a material adverse effect on the Company's financial results or competitive position in any one year. See Note 22, "Commitments and Contingencies," of the notes to consolidated financial statements for further discussion of environmental matters.

Government Regulation and Supervision

The Company's operations are subject to numerous federal, state and local laws and regulations, both within and outside the U.S., in areas such as: consumer protection, government contracts, international trade, environmental protection, labor and employment, tax, licensing and others. For example, most U.S. states and non-U.S. jurisdictions in which the Company operates have licensing laws directed specifically toward the alarm and fire suppression industries. The Company's security businesses currently rely extensively upon the use of wireline and wireless telephone service to communicate signals. Wireline and wireless telephone companies in the U.S. are regulated by the federal and state governments. In addition, government regulation of fire safety codes can impact the Company's fire businesses. These and other laws and regulations impact the manner in which the Company conducts its business, and changes in legislation or government policies can affect the Company's worldwide operations, both favorably and unfavorably. For a more detailed description of the various laws and regulations that affect the Company's business, see Item 1A. Risk Factors.

Employees

As of September 30, 2019, the Company employed approximately 104,000 people worldwide, of which approximately 39,000 were employed in the United States and approximately 65,000 were outside the United States. Approximately 22,000 employees are covered by collective bargaining agreements or works councils and the Company believes that its relations with the labor unions are generally good.

Seasonal Factors

Certain of the Company's sales are seasonal as the demand for residential air conditioning equipment generally increases in the summer months. This seasonality is mitigated by the other products and services provided by the Company that have no material seasonal effect.

Research and Development Expenditures

Refer to Note 1, "Summary of Significant Accounting Policies," of the notes to consolidated financial statements for research and development expenditures.

Available Information

The Company’s filings with the U.S. Securities and Exchange Commission ("SEC"), including annual reports on Form 10-K, quarterly reports on Form 10-Q, definitive proxy statements on Schedule 14A, current reports on Form 8-K, and any amendments to those reports filed pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934, are made available free of charge through the Investor Relations section of the Company’s Internet website at http://www.johnsoncontrols.com as soon as reasonably practicable after the Company electronically files such material with, or furnishes it to, the SEC. Copies of any materials the Company files with the SEC can also be obtained free of charge through the SEC’s website at http://www.sec.gov. The Company also makes available, free of charge, its Ethics Policy, Corporate Governance Guidelines, Board of Directors committee charters and other information related to the Company on the Company’s Internet website or in printed form upon request. The Company is not including the information contained on the Company’s website as a part of, or incorporating it by reference into, this Annual Report on Form 10-K.

ITEM 1A RISK FACTORS

Risks Relating to Business Operations

General economic, credit and capital market conditions could adversely affect our financial performance, our ability to grow or sustain our businesses and our ability to access the capital markets.

We compete around the world in various geographic regions and product markets. Global economic conditions affect each of our primary businesses. As we discuss in greater detail in the specific risk factors for each of our businesses that appear below, any future financial distress in the industries and/or markets where we compete could negatively affect our revenues and financial performance in future periods, result in future restructuring charges, and adversely impact our ability to grow or sustain our businesses.

The capital and credit markets provide us with liquidity to operate and grow our businesses beyond the liquidity that operating cash flows provide. A worldwide economic downturn and/or disruption of the credit markets could reduce our access to capital necessary for our operations and executing our strategic plan. If our access to capital were to become significantly constrained, or if costs of capital increased significantly due to lowered credit ratings, prevailing industry conditions, the volatility of the capital markets or other factors; then our financial condition, results of operations and cash flows could be adversely affected.

Some of the industries in which we operate are cyclical and, accordingly, demand for our products and services could be adversely affected by downturns in these industries.

Much of the demand for installation of HVAC, security products, and fire detection and suppression solutions is driven by commercial and residential construction and industrial facility expansion and maintenance projects. Commercial and residential construction projects are heavily dependent on general economic conditions, localized demand for commercial and residential real estate and availability of credit. Commercial and residential real estate markets are prone to significant fluctuations in supply and demand. In addition, most commercial and residential real estate developers rely heavily on project financing in order to initiate and complete projects. Declines in real estate values could lead to significant reductions in the availability of project financing, even in markets where demand may otherwise be sufficient to support new construction. These factors could in turn temper demand for new HVAC, fire detection and suppression and security installations.

Levels of industrial capital expenditures for facility expansions and maintenance turn on general economic conditions, economic conditions within specific industries we serve, expectations of future market behavior and available financing. Additionally, volatility in commodity prices can negatively affect the level of these activities and can result in postponement of capital spending decisions or the delay or cancellation of existing orders.

The businesses of many of our industrial customers, particularly oil and gas companies, chemical and petrochemical companies, mining and general industrial companies, are to varying degrees cyclical and have experienced periodic downturns. During such economic downturns, customers in these industries historically have tended to delay major capital projects, including greenfield construction, maintenance projects and upgrades. Additionally, demand for our products and services may be affected by volatility in energy and commodity prices and fluctuating demand forecasts, as our customers may be more conservative in their capital planning, which may reduce demand for our products and services. Although our industrial customers tend to be less dependent on project financing than real estate developers, disruptions in financial markets and banking systems could make credit and capital markets difficult for our customers to access, and could significantly raise the cost of new debt for our customers. Any difficulty in accessing these markets and the increased associated costs can have a negative effect on investment in large capital projects, including necessary maintenance and upgrades, even during periods of favorable end-market conditions.

Many of our customers inside and outside of the industrial and commercial sectors, including governmental and institutional customers, have experienced budgetary constraints as sources of revenue have been negatively impacted by adverse or stagnant economic conditions. These budgetary constraints have in the past and may in the future reduce demand for our products and services among governmental and institutional customers.

Reduced demand for our products and services could result in the delay or cancellation of existing orders or lead to excess capacity, which unfavorably impacts our absorption of fixed costs. This reduced demand may also erode average selling prices in the industries we serve. Any of these results could materially and adversely affect our business, financial condition, results of operations and cash flows.

Volatility in commodity prices may adversely affect our results of operations.

Increases in commodity costs can negatively impact the profitability of orders in backlog as prices on such orders are typically fixed; therefore, in the short-term, our ability to adjust for changes in certain commodity prices is limited. In these cases, if we are not able to recover commodity cost increases through price increases to our customers on new orders, then such increases will have an adverse effect on our results of operations. In cases where commodity price risk cannot be naturally offset or hedged through supply based fixed price contracts, we use commodity hedge contracts to minimize overall price risk associated with our anticipated commodity purchases. Unfavorability in our hedging programs during a period of declining commodity prices could result in lower margins as we reduce prices to match the market on a fixed commodity cost level. Additionally, to the extent we do not or are unable to hedge certain commodities and the commodity prices substantially increase, such increases will have an adverse effect on our results of operations.

We rely on our global direct installation channel for a significant portion of our revenue. Failure to maintain and grow the installed base resulting from direct channel sales could adversely affect our business.

Unlike many of our competitors, the Company relies on a direct sales channel for a substantial portion of our revenue. The direct channel provides for the installation of fire and security solutions, and HVAC equipment manufactured by the Company. This represents a significant distribution channel for our products, creates a large installed base of our fire and security solutions, and HVAC equipment, and creates opportunities for longer term service and monitoring revenue. If we are unable to maintain or grow this installation business, whether due to changes in economic conditions, a failure to anticipate changing customer needs, a failure to introduce innovative or technologically advanced solutions, or for any other reason, our installation revenue could decline, which could in turn adversely impact our product pull through and our ability to grow service and monitoring revenue.

Our future growth is dependent upon our ability to develop or acquire new technologies that achieve market acceptance with acceptable margins.

Our future success depends on our ability to develop or acquire, manufacture and bring competitive, and increasingly complex, products and services to market quickly and cost-effectively. Our ability to develop or acquire new products, services and technologies requires the investment of significant resources. These acquisitions and development efforts divert resources from other potential investments in our businesses, and they may not lead to the development of new technologies, products or services on a timely basis. Moreover, as we introduce new products, we may be unable to detect and correct defects in the design of a product or in its application to a specified use, which could result in loss of sales or delays in market acceptance. Even after introduction, new or enhanced products may not satisfy customer preferences and product failures may cause customers to reject our products. As a result, these products may not achieve market acceptance and our brand image could suffer. We must also attract, develop and retain individuals with the requisite technical expertise and understanding of customers' needs to develop new technologies and introduce new products, particularly as we increase investment in our digital solutions businesses. We must also monitor disruptive technologies and business models. In addition, the markets for our products, services and technologies may not develop or grow as we anticipate. The failure of our technology, products or services to gain market acceptance due to more attractive offerings by our competitors or the failure to address any of the above factors could significantly reduce our revenues, increase our operating costs or otherwise materially and adversely affect our business, financial condition, results of operations and cash flows.

Risks associated with our non-U.S. operations could adversely affect our business, financial condition and results of operations.

We have significant operations in a number of countries outside the U.S., some of which are located in emerging markets. Long-term economic uncertainty in some of the regions of the world in which we operate, such as Asia, South America, the Middle East, Europe and emerging markets, could result in the disruption of markets and negatively affect cash flows from our operations to cover our capital needs and debt service requirements.

In addition, as a result of our global presence, a significant portion of our revenues and expenses is denominated in currencies other than the U.S. dollar. We are therefore subject to non-U.S. currency risks and non-U.S. exchange exposure. While we employ financial instruments to hedge some of our transactional foreign exchange exposure, these activities do not insulate us completely from those exposures. Exchange rates can be volatile and a substantial weakening of foreign currencies against the U.S. dollar could reduce our profit margin in various locations outside of the U.S. and adversely impact the comparability of results from period to period.

There are other risks that are inherent in our non-U.S. operations, including the potential for changes in socio-economic conditions, laws and regulations, including anti-trust, import, export, labor and environmental laws, and monetary and fiscal policies; protectionist measures that may prohibit acquisitions or joint ventures, or impact trade volumes; unsettled political conditions; government-imposed plant or other operational shutdowns; backlash from foreign labor organizations related to our restructuring actions; corruption; natural and man-made disasters, hazards and losses; violence, civil and labor unrest, and possible terrorist attacks.

These and other factors may have a material adverse effect on our business and results of operations.

Our businesses operate in regulated industries and are subject to a variety of complex and continually changing laws and regulations.

Our operations and employees are subject to various U.S. federal, state and local licensing laws, codes and standards and similar foreign laws, codes, standards and regulations. Changes in laws or regulations could require us to change the way we operate or to utilize resources to maintain compliance, which could increase costs or otherwise disrupt operations. In addition, failure to comply with any applicable laws or regulations could result in substantial fines or revocation of our operating permits and licenses. Competition or other regulatory investigations can continue for several years, be costly to defend and can result in substantial fines. If laws and regulations were to change or if we or our products failed to comply, our business, financial condition and results of operations could be adversely affected.

Due to the international scope of our operations, the system of laws and regulations to which we are subject is complex and includes regulations issued by the U.S. Customs and Border Protection, the U.S. Department of Commerce's Bureau of Industry and Security, the U.S. Treasury Department's Office of Foreign Assets Control and various non U.S. governmental agencies, including applicable export controls, anti-trust, customs, currency exchange control and transfer pricing regulations, laws regulating the foreign ownership of assets, and laws governing certain materials that may be in our products. No assurances can be made that we will continue to be found to be operating in compliance with, or be able to detect violations of, any such laws or regulations. For example, existing free trade laws and regulations, such as the North American Free Trade Agreement, or any successor agreement, provide certain beneficial duties and tariffs for qualifying imports and exports, subject to compliance with the applicable classification and other requirements. Changes in laws or policies governing the terms of foreign trade, and in particular increased trade restrictions, tariffs or taxes on imports from countries where we manufacture products or from where we import products or raw materials (either directly or through our suppliers) could have an impact on our competitive position, business and financial results. For example, certain of our businesses have a significant presence in the United Kingdom (the "U.K."), where the success of the Brexit referendum in 2016 has continued to cause political and economic uncertainty. Although it is unknown what the full terms of the U.K.'s future relationship with the European Union will be, it is possible that the U.K. may be at risk of losing access to free trade agreements for goods and services with the EU and other countries, which may result in increased tariffs on U.K. imports and exports that could have an adverse effect on our profitability.

We cannot predict the nature, scope or effect of future regulatory requirements to which our operations might be subject or the manner in which existing laws might be administered or interpreted.

Cybersecurity incidents could disrupt business operations, result in the loss of critical and confidential information, and adversely impact our reputation and results of operations.

We rely upon the capacity, reliability and security of our IT and data security infrastructure and our ability to expand and continually update this infrastructure in response to the changing needs of our business. As we implement new systems or integrate existing systems, they may not perform as expected. We also face the challenge of supporting our older systems and implementing necessary upgrades. If we experience a problem with the functioning of an important IT system or a security breach of our IT systems, including during system upgrades and/or new system implementations, the resulting disruptions could have an adverse effect on our business.

Global cybersecurity threats and incidents can range from uncoordinated individual attempts to gain unauthorized access to IT systems to sophisticated and targeted measures known as advanced persistent threats, directed at the Company, its products, its customers and/or its third party service providers, including cloud providers. Our customers, including the U.S. government, are increasingly requiring cybersecurity protections and mandating cybersecurity standards in our products, and we may incur additional costs to comply with such demands. While we have experienced, and expect to continue to experience, these types of threats and incidents, none of them to date have been material to the Company. We seek to deploy comprehensive measures to deter, prevent, detect, respond to and mitigate these threats, including identity and access controls, data protection, vulnerability assessments, product software designs which we believe are less susceptible to cyber attacks, continuous monitoring of our IT networks and systems and maintenance of backup and protective systems. Despite these efforts, cybersecurity incidents, depending on their nature and scope, could potentially result in the misappropriation, destruction, corruption or unavailability of critical data and confidential or proprietary information (our own or that of third parties) and the disruption of business operations. Cybersecurity incidents aimed at the software imbedded in our products could lead to third party claims that our product failures have caused a similar range of damages to our customers, and this risk is enhanced by the increasingly connected nature of our products. The potential consequences of a material cybersecurity incident include financial loss, reputational damage, litigation with third parties, theft of intellectual property, fines levied by the Federal Trade Commission, diminution in the value of our investment in research, development and engineering, and increased cybersecurity protection and remediation costs due to the increasing sophistication and proliferation of threats, which in turn could adversely affect our competitiveness and results of operations.

Data privacy, identity protection, and information security may require significant resources and presents certain risks.

We collect, store, have access to and otherwise process certain confidential or sensitive data, including proprietary business information, personal data or other information that is subject to privacy and security laws, regulations and/or customer-imposed controls. Despite our efforts to protect such data, we may be vulnerable to material security breaches, theft, misplaced or lost data, programming errors, or errors that could potentially lead to compromising such data, improper use of our systems, software solutions or networks, unauthorized access, use, disclosure, modification or destruction of information, defective products, production downtimes and operational disruptions. In addition, we operate in an environment in which there are different and potentially conflicting data privacy laws in effect in the various U.S. states and foreign jurisdictions in which we operate and we must understand and comply with each law and standard in each of these jurisdictions while ensuring the data is secure. For example, the State of California has passed legislation granting residents certain new data privacy rights and regulating the security of Internet of Things devices, which will go into effect in January 2020; European laws require us to have an approved legal mechanism to transfer personal data out of Europe; the European Union General Data Protection Regulation, which took effect in May 2018, superseded prior European Union data protection legislation and imposes more stringent requirements in how we collect and process personal data and provides for significantly greater penalties for noncompliance; and several other countries have passed laws that require personal data relating to their citizens to be maintained on local servers and impose additional data transfer restrictions. Government enforcement actions can be costly and interrupt the regular operation of our business, and violations of data privacy laws can result in fines, reputational damage and civil lawsuits, any of which may adversely affect our business, reputation and financial statements.

We could be adversely affected by violations of the U.S. Foreign Corrupt Practices Act, the U.K. Bribery Act and similar anti-bribery laws around the world.

The U.S. Foreign Corrupt Practices Act (the "FCPA"), the U.K. Bribery Act and similar anti-bribery laws in other jurisdictions generally prohibit companies and their intermediaries from making improper payments to government officials or other persons for the purpose of obtaining or retaining business. Recent years have seen a substantial increase in anti-bribery law enforcement activity, with more frequent and aggressive investigations and enforcement proceedings by both U.S. and non-U.S. regulators, and increases in criminal and civil proceedings brought against companies and individuals. Our policies mandate compliance with these anti-bribery laws. We operate in many parts of the world that are recognized as having governmental and commercial corruption and local customs and practices that can be inconsistent with anti-bribery laws. We cannot assure you that our internal control policies and procedures will always protect us from reckless or criminal acts committed by our employees or third party intermediaries. In the event that we believe or have reason to believe that our employees or agents have or may have violated applicable anti-corruption laws, or if we are subject to allegations of any such violations, we may be required to investigate or have outside counsel investigate the relevant facts and circumstances, which can be expensive and require significant time and attention from senior management. Violations of these laws may result in criminal or civil sanctions, which could disrupt our business and result in a material adverse effect on our reputation, business, financial condition, results of operations and cash flows. In addition, we could be subject to commercial impacts such as lost revenue from customers who decline to do business with us as a result of such compliance matters, or we could be subject to lawsuits brought by private litigants, each of which could have a material adverse effect on our reputation, business, financial condition, results of operations and cash flows.

We are subject to risks arising from regulations applicable to companies doing business with the U.S. government.

Our customers include many U.S. federal, state and local government authorities. Doing business with the U.S. government and state and local authorities subjects us to unusual risks, including dependence on the level of government spending and compliance with and changes in governmental procurement and security regulations. Agreements relating to the sale of products to government entities may be subject to termination, reduction or modification, either at the convenience of the government or for failure to perform under the applicable contract. We are subject to potential government investigations of business practices and compliance with government procurement and security regulations, which can be expensive and burdensome. If we were charged with wrongdoing as a result of an investigation, we could be suspended from bidding on or receiving awards of new government contracts, which could have a material adverse effect on the Company's results of operations. In addition, various U.S. federal and state legislative proposals have been made in the past that would deny governmental contracts to U.S. companies that have moved their corporate location abroad. We are unable to predict the likelihood that, or final form in which, any such proposed legislation might become law, the nature of regulations that may be promulgated under any future legislative enactments, or the effect such enactments and increased regulatory scrutiny may have on our business.

Infringement or expiration of our intellectual property rights, or allegations that we have infringed the intellectual property rights of third parties, could negatively affect us.

We rely on a combination of trademarks, trade secrets, patents, copyrights, know-how, confidentiality provisions and licensing arrangements to establish and protect our proprietary rights. We cannot guarantee, however, that the steps we have taken to protect our intellectual property will be adequate to prevent infringement of our rights or misappropriation or theft of our technology, trade secrets or know-how. For example, effective patent, trademark, copyright and trade secret protection may be unavailable or limited in some of the countries in which we operate. In addition, while we generally enter into confidentiality agreements with our employees and third parties to protect our trade secrets, know-how, business strategy and other proprietary information, such confidentiality agreements could be breached or otherwise may not provide meaningful protection for our trade secrets and know-how related to the design, manufacture or operation of our products. If it became necessary for us to resort to litigation to protect our intellectual property rights, any proceedings could be burdensome and costly, and we may not prevail. Further, adequate remedies may not be available in the event of an unauthorized use or disclosure of our trade secrets and manufacturing expertise. Finally, for those products in our portfolio that rely on patent protection, once a patent has expired, the product is generally open to competition. Products under patent protection usually generate significantly higher revenues than those not protected by patents. If we fail to successfully enforce our intellectual property rights, our competitive position could suffer, which could harm our business, financial condition, results of operations and cash flows.

In addition, we are, from time to time, subject to claims of intellectual property infringement by third parties, including practicing entities and non-practicing entities. Regardless of the merit of such claims, responding to infringement claims can be expensive and time-consuming, and the litigation process is subject to inherent uncertainties, and we may not prevail in litigation matters regardless of the merits of our position. Intellectual property lawsuits or claims may become extremely disruptive if the plaintiffs succeed in blocking the trade of our products and services and they may have a material adverse effect on our business, financial condition, results of operations and cash flows.

Global climate change could negatively affect our business.

Increased public awareness and concern regarding global climate change may result in more regional and/or federal requirements to reduce or mitigate the effects of greenhouse gas emissions. There continues to be a lack of consistent climate legislation, which creates economic and regulatory uncertainty. Such regulatory uncertainty extends to incentives, which if discontinued, could adversely impact the demand for energy efficient buildings, and could increase costs of compliance. These factors may impact the demand for our products, obsolescence of our products and our results of operations.

There is a general consensus that greenhouse gas emissions are linked to global climate changes. Climate changes, such as extreme weather conditions, create financial risk to our business. For example, the demand for our products and services, such as residential air conditioning equipment, may be affected by unseasonable weather conditions. Climate changes could also disrupt our operations by impacting the availability and cost of materials needed for manufacturing and could increase insurance and other operating costs. These factors may impact our decisions to construct new facilities or maintain existing facilities in areas most prone to physical climate risks. The Company could also face indirect financial risks passed through the supply chain, and process disruptions due to physical climate changes could result in price modifications for our products and the resources needed to produce them.

Potential liability for environmental contamination could result in substantial costs.

We have projects underway at multiple current and former manufacturing and testing facilities to investigate and remediate environmental contamination resulting from past operations by us or by other businesses that previously owned or used the properties, including our Fire Technology Center and Stanton Street manufacturing facility located in Marinette, Wisconsin. These projects relate to a variety of activities, including arsenic, solvent, oil, metal, lead, perfluorooctane sulfonate ("PFOS"), perfluorooctanoic acid ("PFOA") and/or other per- and poly fluorinated substances ("PFAS") and other hazardous substance contamination cleanup; and structure decontamination and demolition, including asbestos abatement. Because of uncertainties associated with environmental regulation and environmental remediation activities at sites where we may be liable, future expenses that we may incur to remediate identified sites could be considerably higher than the current accrued liability on our consolidated statements of financial position, which could have a material adverse effect on our business, results of operations and cash flows. See Note 22, “Commitments and Contingencies,” of the notes to consolidated financial statements for additional information on these matters.

We are subject to requirements relating to environmental and safety regulations and environmental remediation matters which could adversely affect our business, results of operation and reputation.

We are subject to numerous federal, state and local environmental laws and regulations governing, among other things, solid and hazardous waste storage, treatment and disposal, and remediation of releases of hazardous materials. There are significant capital, operating and other costs associated with compliance with these environmental laws and regulations. Environmental laws and regulations may become more stringent in the future, which could increase costs of compliance or require us to manufacture with alternative technologies and materials.

Federal, state and local authorities also regulate a variety of matters, including, but not limited to, health, safety and permitting in addition to the environmental matters discussed above. New legislation and regulations may require the Company to make material changes to its operations, resulting in significant increases to the cost of production.

We are party to asbestos-related product litigation that could adversely affect our financial condition, results of operations and cash flows.

We and certain of our subsidiaries, along with numerous other third parties, are named as defendants in personal injury lawsuits based on alleged exposure to asbestos containing materials. These cases typically involve product liability claims based primarily on allegations of manufacture, sale or distribution of industrial products that either contained asbestos or were used with asbestos containing components. We cannot predict with certainty the extent to which we will be successful in litigating or otherwise resolving lawsuits in the future and we continue to evaluate different strategies related to asbestos claims filed against us including entity restructuring and judicial relief. Unfavorable rulings, judgments or settlement terms could have a material adverse impact on our business and financial condition, results of operations and cash flows.

The amounts we have recorded for asbestos-related liabilities and insurance-related assets in the consolidated statements of financial position are based on our current strategy for resolving asbestos claims, currently available information, and a number of variables, estimates and assumptions. Key variables and assumptions include the number and type of new claims that are filed each year, the average cost of resolution of claims, the identity of defendants and the resolution of coverage issues with insurance carriers, amount of insurance, and the solvency risk with respect to the Company's insurance carriers. Many of these factors are closely linked, such that a change in one variable or assumption will impact one or more of the others, and no single variable or assumption predominately influences the determination of the Company's asbestos-related liabilities and insurance-related assets. Furthermore, predictions with respect to these variables are subject to greater uncertainty in the later portion of the projection period. Other factors that may affect the Company's liability and cash payments for asbestos-related matters include uncertainties surrounding the litigation process from jurisdiction to jurisdiction and from case to case, reforms of state or federal tort legislation and the applicability of insurance policies among subsidiaries. As a result, actual liabilities or insurance recoveries could be significantly higher or lower than those recorded if assumptions used in our calculations vary significantly from actual results. If actual liabilities are significantly higher than those recorded, the cost of resolving such liabilities could have a material adverse effect on our financial position, results of operations and cash flows.

Risks related to our defined benefit retirement plans may adversely impact our results of operations and cash flow.

Significant changes in actual investment return on defined benefit plan assets, discount rates, mortality assumptions and other factors could adversely affect our results of operations and the amounts of contributions we must make to our defined benefit plans in future periods. Because we mark-to-market our defined benefit plan assets and liabilities on an annual basis, large non-cash gains or losses could be recorded in the fourth quarter of each fiscal year or when a remeasurement event occurs. Generally accepted accounting principles in the U.S. require that we calculate income or expense for the plans using actuarial valuations. These valuations reflect assumptions about financial markets and interest rates, which may change based on economic conditions. Funding requirements for our defined benefit plans are dependent upon, among other factors, interest rates, underlying asset returns and the impact of legislative or regulatory changes related to defined benefit funding obligations. For a discussion regarding the significant assumptions used to determine net periodic benefit cost, refer to "Critical Accounting Estimates and Policies" included in Item 7, "Management’s Discussion and Analysis of Financial Condition and Results of Operations."

We may be unable to realize the expected benefits of our restructuring actions, which could adversely affect our profitability and operations.

To align our resources with our growth strategies, operate more efficiently and control costs, we periodically announce restructuring plans, which may include workforce reductions, global plant closures and consolidations, asset impairments and other cost reduction initiatives. We may undertake additional restructuring actions and workforce reductions in the future. As these plans and actions are complex, unforeseen factors could result in expected savings and benefits to be delayed or not realized to the full extent planned, and our operations and business may be disrupted.

Negative or unexpected tax consequences could adversely affect our results of operations.

Adverse changes in the underlying profitability and financial outlook of our operations in several jurisdictions could lead to additional changes in our valuation allowances against deferred tax assets and other tax reserves on our statement of financial position, and the future sale of certain businesses could potentially result in the reversal of outside basis differences that could adversely affect our results of operations and cash flows. Additionally, changes in tax laws in the U.S., Ireland or in other countries where we have significant operations could materially affect deferred tax assets and liabilities on our consolidated statements of financial position and our income tax provision in our consolidated statements of income.

We are also subject to tax audits by governmental authorities. Negative unexpected results from one or more such tax audits could adversely affect our results of operations.

Future changes in U.S. tax law could adversely affect us or our affiliates.

On December 22, 2017, the President of the United States signed into law a bill commonly referred to as the "Tax Cuts and Jobs Act" (the "TCJA"), which made significant changes to certain U.S. tax laws relevant to us and our affiliates. While interpretations of the provisions of the TCJA continue to be subject to uncertainty, and regulatory guidance on certain aspects of the TCJA has not yet been issued, the TJCA is expected to have an adverse effect on the U.S. federal income taxation of our and our affiliates’ operations, including limiting or eliminating various deductions or credits (including interest expense deductions and deductions relating to employee compensation), imposing taxes on certain cross-border payments or transfers, imposing taxes on certain earnings of non-U.S. entities on a current basis, changing the timing of the recognition of income or its character, limiting asset basis under certain circumstances, and imposing additional corporate taxes under certain circumstances to combat perceived base erosion issues, among other changes.

The TCJA and any related legislation or regulations, as well as any other future changes in U.S. tax laws, could adversely affect the U.S. federal income taxation of our and our affiliates' ongoing operations and may also adversely affect the integration efforts relating to, and potential synergies from, past strategic transactions, as described below. Any such changes and related consequences could have a material adverse impact on our financial results and cash flows. See Note 18, "Income Taxes," of the notes to consolidated financial statements for additional information on the impact the TCJA had on our business, financial performance and results of operations.

Legal proceedings in which we are, or may be, a party may adversely affect us.

We are currently, and may in the future, become subject to legal proceedings and commercial or contractual disputes. These are typically claims that arise in the normal course of business including, without limitation, commercial or contractual disputes with our suppliers or customers, intellectual property matters, third party liability, including product liability claims and employment claims. In addition, we have been named, along with others, in a number of class action and other lawsuits relating to the use of fire-fighting foam products by the U.S. Department of Defense, the U.S. military and others for fire suppression purposes and related training exercises. Plaintiffs generally allege that the fire-fighting foam products contain or break down into the chemicals PFOS and PFOA and/or other PFAS compounds and that the use of these products by others at various airbases, airports and other sites resulted in the release of these chemicals into the environment and ultimately into communities' drinking water supplies neighboring those airports, airbases and other sites. Plaintiffs in these cases generally seek compensatory damages, including damages for alleged personal injuries, medical monitoring, diminution in property values, investigation and remediation costs, and natural resources damages, and also seek punitive damages and injunctive relief to address remediation of the alleged contamination. It is difficult to predict the outcome or ultimate financial exposure, if any, represented by these matters, and there can be no assurance that any such exposure will not be material. Such claims may also negatively affect our reputation. See Note 22, "Commitments and Contingencies," of the notes to consolidated financial statements for additional information on these matters.

A downgrade in the ratings of our debt could restrict our ability to access the debt capital markets and increase our interest costs.

Unfavorable changes in the ratings that rating agencies assign to our debt may ultimately negatively impact our access to the debt capital markets and increase the costs we incur to borrow funds. If ratings for our debt fall below investment grade, our access to the debt capital markets would become restricted. Future tightening in the credit markets and a reduced level of liquidity in many financial markets due to turmoil in the financial and banking industries could affect our access to the debt capital markets or the price we pay to issue debt. Historically, we have relied on our ability to issue commercial paper rather than to draw on our credit facility to support our daily operations, which means that a downgrade in our ratings or volatility in the financial markets causing limitations to the debt capital markets could have an adverse effect on our business or our ability to meet our liquidity needs.

Additionally, several of our credit agreements generally include an increase in interest rates if the ratings for our debt are downgraded. Further, an increase in the level of our indebtedness may increase our vulnerability to adverse general economic and industry conditions and may affect our ability to obtain additional financing.

The potential insolvency or financial distress of third parties could adversely impact our business and results of operations.

We are exposed to the risk that third parties to various arrangements who owe us money or goods and services, or who purchase goods and services from us, will not be able to perform their obligations or continue to place orders due to insolvency or financial distress. If third parties fail to perform their obligations under arrangements with us, we may be forced to replace the underlying commitment at current or above market prices or on other terms that are less favorable to us. In such events, we may incur losses, or our results of operations, financial condition or liquidity could otherwise be adversely affected.

We may be unable to complete or integrate acquisitions or joint ventures effectively, which may adversely affect our growth, profitability and results of operations.

We expect acquisitions of businesses and assets, as well as joint ventures (or other strategic arrangements), to play a role in our future growth. We cannot be certain that we will be able to identify attractive acquisition or joint venture targets, obtain financing for acquisitions on satisfactory terms, successfully acquire identified targets or form joint ventures, or manage the timing of acquisitions with capital obligations across our businesses. Additionally, we may not be successful in integrating acquired businesses or joint ventures into our existing operations and achieving projected synergies which could result in impairment of assets, including goodwill and acquired intangible assets. Given the significance of the Company's past acquisitions, the goodwill and intangible assets recorded were significant and impairment of such assets could result in a material adverse impact on our financial condition and results of operation. Competition for acquisition opportunities in the various industries in which we operate may rise, thereby increasing our costs of making acquisitions or causing us to refrain from making further acquisitions. If we were to use equity securities to finance a future acquisition, our then-current shareholders would experience dilution. We are also subject to applicable antitrust laws and must avoid anticompetitive behavior. These and other factors related to acquisitions and joint ventures may negatively and adversely impact our growth, profitability and results of operations.

Risks associated with joint venture investments may adversely affect our business and financial results.

We have entered into several joint ventures and we may enter into additional joint ventures in the future. Our joint venture partners may at any time have economic, business or legal interests or goals that are inconsistent with our goals or with the goals of the joint venture. In addition, we may compete against our joint venture partners in certain of our other markets. Disagreements with our business partners may impede our ability to maximize the benefits of our partnerships. Our joint venture arrangements may require us, among other matters, to pay certain costs or to make certain capital investments or to seek our joint venture partner's consent to take certain actions. In addition, our joint venture partners may be unable or unwilling to meet their economic or other obligations under the operative documents, and we may be required to either fulfill those obligations alone to ensure the ongoing success of a joint venture or to dissolve and liquidate a joint venture. These risks could result in a material adverse effect on our business and financial results.

We are subject to business continuity risks associated with centralization of certain administrative functions.

We have been regionally centralizing certain administrative functions, primarily in North America, Europe and Asia, to improve efficiency and reduce costs. To the extent that these central locations are disrupted or disabled, key business processes, such as invoicing, payments and general management operations, could be interrupted, which could have an adverse impact on our business.

A material disruption of our operations, particularly at our monitoring and/or manufacturing facilities, could adversely affect our business.

If our operations, particularly at our monitoring facilities and/or manufacturing facilities, were to be disrupted as a result of significant equipment failures, natural disasters, power outages, fires, explosions, terrorism, sabotage, adverse weather conditions, public health crises, labor disputes or other reasons, we may be unable to effectively respond to alarm signals, fill customer orders and otherwise meet obligations to or demand from our customers, which could adversely affect our financial performance.

Interruptions in production could increase our costs and reduce our sales. Any interruption in production capability could require us to make substantial capital expenditures or purchase alternative material at higher costs to fill customer orders, which could negatively affect our profitability and financial condition. We maintain property damage insurance that we believe to be adequate to provide for reconstruction of facilities and equipment, as well as business interruption insurance to mitigate losses resulting from significant production interruption or shutdown caused by an insured loss. However, any recovery under our insurance policies may not offset the lost sales or increased costs that may be experienced during the disruption of operations, which could adversely affect our business, financial condition, results of operations and cash flow.

Our business success depends on attracting and retaining qualified personnel.

Our ability to sustain and grow our business requires us to hire, retain and develop a highly skilled and diverse management team and workforce. Failure to ensure that we have the leadership capacity with the necessary skill set and experience could impede our ability to deliver our growth objectives and execute our strategic plan. Organizational and reporting changes resulting from the Merger, or as a result of any future leadership transition or corporate initiatives could result in increased turnover. Additionally, any unplanned turnover or inability to attract and retain key employees could have a negative effect on our results of operations.

Our business may be adversely affected by work stoppages, union negotiations, labor disputes and other matters associated with our labor force.

We employ approximately 104,000 people worldwide. Approximately 21% of these employees are covered by collective bargaining agreements or works council. Although we believe that our relations with the labor unions and works councils that represent our employees are generally good and we have experienced no material strikes or work stoppages recently, no assurances can be made that we will not experience in the future these and other types of conflicts with labor unions, works council, other groups representing employees or our employees generally, or that any future negotiations with our labor unions will not result in significant increases in our cost of labor. Additionally, a work stoppage at one of our suppliers could materially and adversely affect our operations if an alternative source of supply were not readily available. Stoppages by employees of our customers could also result in reduced demand for our products.

We are exposed to greater risks of liability for employee acts or omissions, or system failure, in our fire and security businesses than may be inherent in other businesses.

If a customer or third party believes that he or she has suffered harm to person or property due to an actual or alleged act or omission of one of our employees or a security or fire system failure, he or she may pursue legal action against us, and the cost of defending the legal action and of any judgment could be substantial. In particular, because many of our products and services are intended to protect lives and real and personal property, we may have greater exposure to litigation risks than businesses that provide other products and services. We could face liability for failure to respond adequately to alarm activations or failure of our fire protection to operate as expected. The nature of the services we provide exposes us to the risks that we may be held liable for employee acts or omissions or system failures. In an attempt to reduce this risk, our installation, service and monitoring agreements and other contracts contain provisions limiting our liability in such circumstances, and we typically maintain product liability insurance to mitigate the risk that our products and services fail to operate as expected. However, in the event of litigation, it is possible that contract limitations may be deemed not applicable or unenforceable, that our insurance coverage is not adequate, or that insurance carriers deny coverage of our claims. As a result, such employee acts or omissions or system failures could have a material adverse effect on our business, financial condition, results of operations and cash flows.

We do not own the right to use the ADT® brand name in the U.S. and Canada.

We own the ADT® brand name in jurisdictions outside of the U.S. and Canada, and The ADT Corporation ("ADT") owns the brand name in the U.S. and Canada. Although Tyco has entered into agreements with ADT designed to protect the value of the ADT® brand, we cannot assure you that actions taken by ADT will not negatively impact the value of the brand outside of the U.S. and Canada. These factors expose us to the risk that the ADT® brand name could suffer reputational damage or devaluation for reasons outside of our control, including ADT's business conduct in the U.S. and Canada. Any of these factors may adversely affect our business, financial condition, results of operations and cash flows.

Police departments could refuse to respond to calls from monitored security service companies.

Police departments in a limited number of jurisdictions do not respond to calls from monitored security service companies, either as a matter of policy or by local ordinance. We have offered affected customers the option of receiving responses from private guard companies, in most cases through contracts with us, which increases the overall cost to customers. If more police departments, whether inside or outside the U.S., were to refuse to respond or be prohibited from responding to calls from monitored security service companies, our ability to attract and retain customers could be negatively impacted and our results of operations and cash flow could be adversely affected.

A variety of other factors could adversely affect the results of operations of our business.

Any of the following could materially and adversely impact the results of operations of our business: loss of, changes in, or failure to perform under guaranteed performance contracts with our major customers; cancellation of, or significant delays in, projects in our backlog; delays or difficulties in new product development; the potential introduction of similar or superior technologies; financial instability or market declines of our major component suppliers; the unavailability of raw materials (primarily steel, copper and electronic components) necessary for production of our products; price increases of limited-source components, products and services that we are unable to pass on to the market; unseasonable weather conditions in various parts of the world; changes in energy costs or governmental regulations that would decrease the incentive for customers to update or improve their building control systems; revisions to energy efficiency or refrigerant legislation; and natural or man-made disasters or losses that impact our ability to deliver products and services to our customers.

Risks Relating to Strategic Transactions

We may fail to realize the anticipated benefits of the business combination between Johnson Controls, Inc. and Tyco International plc.

The success of the Merger will depend on, among other things, our ability to combine the legacy businesses of Johnson Controls and Tyco in a manner that realizes anticipated synergies and facilitates growth opportunities, and achieves the projected stand-alone cost savings and revenue growth trends identified by us. We expect to benefit from operational and general and administrative cost synergies resulting from the consolidation of capabilities and branch optimization, as well as greater tax efficiencies from global management and global cash movement. We may also enjoy revenue synergies, including product and service cross-selling, a more diversified and expanded product offering and balance across geographic regions. However, we must successfully combine the legacy businesses of Johnson Controls and Tyco in a manner that permits these cost savings and synergies to be realized. In addition, we must achieve the anticipated savings and synergies without adversely affecting current revenues and investments in future growth. If we are not able to successfully achieve these objectives, we may not realize fully, or at all, the anticipated benefits of the Merger, or it may take longer to realize the benefits than expected.

Other factors may prevent us from realizing the anticipated benefits of the Merger or impact our future performance. These include, among other items, the possibility that the contingent liabilities of either party (including contingent tax liabilities) are larger than expected, the existence of unknown liabilities, adverse consequences and unforeseen increased expenses associated with the Merger and possible adverse tax consequences pursuant to changes in applicable tax laws (including most recently the TCJA), regulations or other administrative guidance. In addition, we may be subject to additional restrictions as a result of the Company's Irish domicile.

We may encounter significant difficulties in combining the legacy Johnson Controls and Tyco businesses.

The combination of two independent businesses is a complex, costly and time-consuming process. As a result, we continue to devote significant management attention and resources to combining the business practices and operations of the legacy Johnson Controls and Tyco businesses. This process may disrupt the businesses. The failure to meet the challenges involved in combining the two businesses and to realize the anticipated benefits of the transactions could cause an interruption of, or a loss of momentum in, the activities of the combined company and could adversely affect our results of operations. The overall combination of legacy Johnson Controls and Tyco businesses may also result in material unanticipated problems, expenses, liabilities, competitive responses, loss of customer and other business relationships and diversion of management attention. The difficulties of combining the operations of the companies include, among others:

- the diversion of management attention to integration matters;
- difficulties in integrating operations and systems;
- challenges in conforming standards, controls, procedures and accounting and other policies, business cultures and compensation structures between the two companies;
- difficulties in assimilating employees and in attracting and retaining key personnel;
- challenges in keeping existing customers and obtaining new customers;
- difficulties in achieving anticipated cost savings, synergies, business opportunities and growth prospects from the combination;
- difficulties in managing the expanded operations of a significantly larger and more complex company;
- contingent liabilities (including contingent tax liabilities) that are larger than expected; and
- potential unknown liabilities, adverse consequences and unforeseen increased expenses associated with the Merger, including possible adverse tax consequences to the combined company pursuant to changes in applicable tax laws or regulations.

Many of these factors are outside of our control, and any one of them could result in increased costs, decreased expected revenues and diversion of management time and energy, which could materially impact the business, financial condition and results of operations of the combined company.

Divestitures of some of our businesses or product lines may materially adversely affect our financial condition, results of operations or cash flows.

We continually evaluate the performance and strategic fit of all of our businesses and may sell businesses or product lines. For example, on October 31, 2016, we completed the spin-off of our Automotive Experience business and sold our Scott Safety business in October 2017. In addition, on April 30, 2019, we sold our Power Solutions business to BCP Acquisitions LLC. Divestitures involve risks, including difficulties in the separation of operations, services, products and personnel, the diversion of management's attention from other business concerns, the disruption of our business, the potential loss of key employees and the retention of uncertain environmental or other contingent liabilities related to the divested business. Some divestitures, like the Power Solutions divestiture, may be dilutive to earnings. In addition, divestitures may result in significant asset impairment charges, including those related to goodwill and other intangible assets, which could have a material adverse effect on our financial condition and results of operations. We cannot assure you that we will be successful in managing these or any other significant risks that we encounter in divesting a business or product line, and any divestiture we undertake could materially and adversely affect our business, financial condition, results of operations and cash flows, and may also result in a diversion of management attention, operational difficulties and losses. With respect to the Power Solutions divestiture, there can be no assurance whether the strategic benefits and expected financial impact of the divestiture will be achieved.

The Internal Revenue Service ("IRS") may not agree that we should be treated as a non-U.S. corporation for U.S. federal tax purposes and may not agree that the our U.S. affiliates should not be subject to certain adverse U.S. federal income tax rules.

Under current U.S. federal tax law, a corporation is generally considered for U.S. federal tax purposes to be a tax resident in the jurisdiction of its organization or incorporation. Because Johnson Controls International plc is an Irish incorporated entity, it would generally be classified as a non-U.S. corporation (and, therefore, a non-U.S. tax resident) under these rules. However, Section 7874 of the Code ("Section 7874") provides an exception to this general rule under which a non-U.S. incorporated entity may, in certain circumstances, be treated as a U.S. corporation for U.S. federal tax purposes.

Under Section 7874, if (1) former Johnson Controls, Inc. shareholders owned (within the meaning of Section 7874) 80% or more (by vote or value) of our ordinary shares after the Merger by reason of holding Johnson Controls, Inc. common stock (the "80% ownership test," and such ownership percentage the "Section 7874 ownership percentage"), and (2) our "expanded affiliated group" did not have "substantial business activities" in Ireland ("the substantial business activities test"), we will be treated as a U.S. corporation for U.S. federal tax purposes. If the Section 7874 ownership percentage of the former Johnson Controls, Inc. shareholders after the Merger was less than 80% but at least 60% (the "60% ownership test"), and the substantial business activities test was not met, we and our U.S. affiliates (including the U.S. affiliates historically owned by Tyco) may, in some circumstances, be subject to certain adverse U.S. federal income tax rules (which, among other things, could limit their ability to utilize certain U.S. tax attributes to offset U.S. taxable income or gain resulting from certain transactions).

Based on the terms of the Merger, the rules for determining share ownership under Section 7874 and certain factual assumptions, we believe that former Johnson Controls, Inc. shareholders owned (within the meaning of Section 7874) less than 60% (by both vote and value) of our ordinary shares after the Merger by reason of holding shares of Johnson Controls, Inc. common stock. Therefore, under current law, we believe that we should not be treated as a U.S. corporation for U.S. federal tax purposes and that Section 7874 should otherwise not apply to us or our affiliates as a result of the Merger.

However, the rules under Section 7874 are complex and there is limited guidance regarding their application. In particular, ownership for purposes of Section 7874 is subject to various adjustments under the Code and the Treasury regulations promulgated thereunder, and there is limited guidance regarding Section 7874, including with respect to the application of the ownership tests described therein. As a result, the determination of the Section 7874 ownership percentage is complex and is subject to factual and legal uncertainties. Thus, there can be no assurance that the IRS will agree with the position that we should not be treated as a U.S. corporation for U.S. federal tax purposes or that Section 7874 does not otherwise apply as a result of the Merger.

In addition, on January 13, 2017 and July 11, 2018, the U.S. Treasury and the IRS finalized certain Treasury regulations issued under Section 7874 and revised certain related temporary regulations (the "Section 7874 Regulations"), which, among other things, require certain adjustments that generally increase, for purposes of the Section 7874 ownership tests, the percentage of the stock of a foreign acquiring corporation deemed owned (within the meaning of Section 7874) by the former shareholders of an acquired U.S. corporation by reason of holding stock in such U.S. corporation. For example, these regulations disregard, for purposes of determining this ownership percentage, (1) any "non-ordinary course distributions" (within the meaning of the regulations) made by the acquired U.S. corporation (such as Johnson Controls, Inc.) during the 36 months preceding the acquisition, including certain dividends and share repurchases, (2) potentially any cash consideration received by the shareholders of such U.S. corporation in the acquisition to the extent such cash is, directly or indirectly, provided by the U.S. corporation, as well as (3) certain stock of the foreign acquiring corporation that was issued as consideration in a prior acquisition of another U.S. corporation (or U.S. partnership) during the 36 months preceding the signing date of a binding contract for the acquisition being tested. Taking into account the effect of these regulations, we believe that the Section 7874 ownership percentage of former Johnson Controls, Inc. shareholders in us was less than 60%. However, these regulations are complex and there is limited guidance regarding their application. Accordingly, there can be no assurance that the IRS will not successfully assert that either the 80% ownership test or the 60% ownership test was met after the Merger.

If the 80% ownership test was met after the Merger and we were accordingly treated as a U.S. corporation for U.S. federal tax purposes under Section 7874, we would be subject to substantial additional U.S. tax liability. Additionally, in such case, our non-U.S. shareholders would be subject to U.S. withholding tax on the gross amount of any dividends we pay to such shareholders (subject to an exemption or reduced rate available under an applicable tax treaty). Regardless of any application of Section 7874, we are treated as an Irish tax resident for Irish tax purposes. Consequently, if we were to be treated as a U.S. corporation for U.S. federal tax purposes under Section 7874, we could be liable for both U.S. and Irish taxes, which could have a material adverse effect on our financial condition and results of operations.

If the 60% ownership test were met, several adverse U.S. federal income tax rules could apply to our U.S. affiliates. In particular, in such case, Section 7874 could limit the ability of such U.S. affiliates to utilize certain U.S. tax attributes (including net operating losses and certain tax credits) to offset any taxable income or gain resulting from certain transactions, including any transfers or licenses of property to a foreign related person during the 10-year period following the Merger. The Section 7874 Regulations generally expand the scope of these rules. If the 60% ownership test were met after the Merger, such current and future limitations would apply to our U.S. affiliates (including the U.S. affiliates historically owned by Tyco), and their application could limit their ability to utilize such U.S. tax attributes against any income or gain recognized in connection with the Adient spin-off. In such case, the application of such rules could result in significant additional U.S. tax liability. In addition, the Section 7874 Regulations (and certain related temporary regulations issued under other provisions of the Code) include rules that would apply if the 60% ownership test were met, which, in such situation, may limit our ability to restructure or access cash earned by certain of our non-U.S. subsidiaries, in each case, without incurring substantial U.S. tax liabilities.

Future potential changes to the tax laws could result in our being treated as a U.S. corporation for U.S. federal tax purposes or in us and our U.S. affiliates (including the U.S. affiliates historically owned by Tyco) being subject to certain adverse U.S. federal income tax rules.

As discussed above, under current law, we believe that we should be treated as a non-U.S. corporation for U.S. federal tax purposes and that Section 7874 does not otherwise apply as a result of the Merger. However, changes to Section 7874, or the U.S. Treasury regulations promulgated thereunder, could affect our status as a non-U.S. corporation for U.S. federal tax purposes or could result in the application of certain adverse U.S. federal income tax rules to us and our U.S. affiliates (including the U.S. affiliates historically owned by Tyco). Any such changes could have prospective or retroactive application, and may apply even though the Merger has been consummated. If we were to be treated as a U.S. corporation for federal tax purposes or if we or our U.S. affiliates (including the U.S. affiliates historically owned by Tyco) were to become subject to such adverse U.S. federal income tax rules, we and our U.S. affiliates could be subject to substantially greater U.S. tax liability than currently contemplated.

Certain legislative and other proposals have aimed to expand the scope of U.S. corporate tax residence, including in such a way as would cause us to be treated as a U.S. corporation if our place of management and control or the place of management and control of our non-U.S. affiliates were determined to be located primarily in the United States. In addition, certain legislative and other proposals have aimed to expand the scope of Section 7874, or otherwise address certain perceived issues arising in connection with so-called inversion transactions. For example, multiple proposals introduced by certain Democratic members of both houses of Congress, which, if enacted in their present form, would be effective retroactively to certain transactions (including the Merger), would, among other things, treat a foreign acquiring corporation as a U.S. corporation for U.S. federal tax purposes under Section 7874 if the former shareholders of a U.S. corporation acquired by such foreign acquiring corporation own more than 50% of the shares of the foreign acquiring corporation after the acquisition. These proposals, if enacted in their present form and made retroactive to a date before the date of the closing of the Merger, would cause us to be treated as a U.S. corporation for U.S. federal tax purposes. In such case, we would be subject to substantially greater U.S. tax liability than currently contemplated. It is presently uncertain whether any such proposals or other legislative action relating to the scope of U.S. tax residence, Section 7874 or so-called inversion transactions and inverted groups will be enacted into law.

Other legislative and/or other proposals relating to U.S. taxation could also have a material impact on our future financial results. The recently enacted TCJA introduced significant changes to certain U.S. tax laws relevant to us and our affiliates, including limitations on the deductibility of certain interest expense and employee compensation, limitations on various other deductions and credits, the imposition of taxes in respect of certain cross-border payments or transfers, the imposition of taxes on certain earnings of non-U.S. entities on a current basis, and changes in the timing of the recognition of income or its character. These changes, any future regulatory guidance implementing the TCJA, as well as any other legislative or other proposals or changes relating to U.S. taxation (which may or may not be adopted and may apply, on a prospective or retroactive basis), could have a significant adverse effect on us and our affiliates.

Adient may fail to perform under various transaction agreements that we have executed as part of the Adient spin-off.

On October 31, 2016, we completed the separation of our Automotive Experience business through the spin-off of Adient plc to shareholders.

In connection with the spin-off of Adient, we and Adient have entered into a separation and distribution agreement and various other agreements, including a transition services agreement, a tax matters agreement, an employee matters agreement and a transitional trademark license agreement. Certain of these agreements provide for the performance of services by each company for the benefit of the other for a period of time after the spin-off. We will rely on Adient to satisfy its performance and payment obligations under these agreements. If Adient is unable to satisfy its obligations under these agreements, including its indemnification obligations, we could incur operational difficulties or losses.

Risks Relating to Our Jurisdiction of Incorporation

Legislative action in the U.S. could materially and adversely affect us.

Legislative action may be taken by the U.S. Congress which, if ultimately enacted, could limit the availability of tax benefits or deductions that we currently claim, override tax treaties upon which we rely, affect our status as a non-U.S. corporation for U.S. federal income tax purposes, impose additional taxes on payments made by our U.S. subsidiaries to non-U.S. affiliates, or otherwise affect the taxes that the U.S. imposes on our worldwide operations. Such changes could have retroactive effect and could have a material adverse effect on our effective tax rate and/or require us to take further action, at potentially significant expense, to seek to preserve our effective tax rate. In addition, if proposals were enacted that had the effect of disregarding or limiting our ability, as an Irish company, to take advantage of tax treaties with the U.S., we could incur additional tax expense and/or otherwise incur business detriment.

Legislation relating to governmental contracts could materially and adversely affect us.

Various U.S. federal and state legislative proposals that would deny governmental contracts to U.S. companies that have moved their corporate location abroad may affect us. We are unable to predict the likelihood that, or final form in which, any such proposed legislation might become law, the nature of regulations that may be promulgated under any future legislative enactments, or the effect such enactments and increased regulatory scrutiny may have on our business.

Irish law differs from the laws in effect in the U.S. and may afford less protection to holders of our securities.

It may not be possible to enforce court judgments obtained in the U.S. against us in Ireland based on the civil liability provisions of the U.S. federal or state securities laws. In addition, there is some uncertainty as to whether the courts of Ireland would recognize or enforce judgments of U.S. courts obtained against us or our directors or officers based on the civil liabilities provisions of the U.S. federal or state securities laws or hear actions against us or those persons based on those laws. We have been advised that the U.S. currently does not have a treaty with Ireland providing for the reciprocal recognition and enforcement of judgments in civil and commercial matters. Therefore, a final judgment for the payment of money rendered by any U.S. federal or state court based on civil liability, whether or not based solely on U.S. federal or state securities laws, would not automatically be enforceable in Ireland.

A judgment obtained against the combined company will be enforced by the courts of Ireland if the following general requirements are met:

- U.S. courts must have had jurisdiction in relation to the particular defendant according to Irish conflict of law rules (the submission to jurisdiction by the defendant would satisfy this rule); and
- the judgment must be final and conclusive and the decree must be final and unalterable in the court which pronounces it.

A judgment can be final and conclusive even if it is subject to appeal or even if an appeal is pending. But where the effect of lodging an appeal under the applicable law is to stay execution of the judgment, it is possible that in the meantime the judgment may not be actionable in Ireland. It remains to be determined whether final judgment given in default of appearance is final and conclusive. Irish courts may also refuse to enforce a judgment of the U.S. courts which meets the above requirements for one of the following reasons:

- the judgment is not for a definite sum of money;
- the judgment was obtained by fraud;
- the enforcement of the judgment in Ireland would be contrary to natural or constitutional justice;
- the judgment is contrary to Irish public policy or involves certain U.S. laws which will not be enforced in Ireland; or
- jurisdiction cannot be obtained by the Irish courts over the judgment debtors in the enforcement proceedings by personal service Ireland or outside Ireland under Order 11 of the Irish Superior Courts Rules.

As an Irish company, Johnson Controls is governed by the Irish Companies Acts, which differ in some material respects from laws generally applicable to U.S. corporations and shareholders, including, among others, differences relating to interested director and officer transactions and shareholder lawsuits. Likewise, the duties of directors and officers of an Irish company generally are owed to the company only. Shareholders of Irish companies generally do not have a personal right of action against directors or officers of the company and may exercise such rights of action on behalf of the company only in limited circumstances. Accordingly, holders of Johnson Controls International plc securities may have more difficulty protecting their interests than would holders of securities of a corporation incorporated in a jurisdiction of the U.S.

Our effective tax rate may increase.

There is uncertainty regarding the tax policies of the jurisdictions where we operate, which if enacted could result in an increase in our effective tax rate. Additionally, the tax laws of Ireland and other jurisdictions could change in the future, and such changes could cause a material increase in our effective tax rate.

Changes to the U.S. model income tax treaty could adversely affect us.

On February 17, 2016, the U.S. Treasury released a revised U.S. model income tax convention (the "new model"), which is the baseline text used by the U.S. Treasury to negotiate tax treaties. If any or all of the modifications to the model treaty are adopted in the main jurisdictions in which we do business, they could, among other things, cause double taxation, increase audit risk and substantially increase our worldwide tax liability. We cannot predict the outcome of any specific modifications to the model treaty, and we cannot provide assurance that any such modifications will not apply to us.

Transfers of Johnson Controls ordinary shares may be subject to Irish stamp duty.

For the majority of transfers of Johnson Controls ordinary shares, there is no Irish stamp duty. However, Irish stamp duty is payable for certain share transfers. A transfer of Johnson Controls ordinary shares from a seller who holds shares beneficially (i.e. through the Depository Trust Company ("DTC")) to a buyer who holds the acquired shares beneficially is not subject to Irish stamp duty (unless the transfer involves a change in the nominee that is the record holder of the transferred shares). A transfer of Johnson Controls ordinary shares by a seller who holds shares directly (i.e. not through DTC) to any buyer, or by a seller who holds the shares beneficially to a buyer who holds the acquired shares directly, may be subject to Irish stamp duty (currently at the rate of 1% of the price paid or the market value of the shares acquired, if higher) payable by the buyer. A shareholder who directly holds shares may transfer those shares into his or her own broker account to be held through DTC without giving rise to Irish stamp duty provided that the shareholder has confirmed to Johnson Controls transfer agent that there is no change in the ultimate beneficial ownership of the shares as a result of the transfer and, at the time of the transfer, there is no agreement in place for a sale of the shares.

We currently intend to pay, or cause one of our affiliates to pay, stamp duty in connection with share transfers made in the ordinary course of trading by a seller who holds shares directly to a buyer who holds the acquired shares beneficially. In other cases Johnson Controls may, in its absolute discretion, pay or cause one of its affiliates to pay any stamp duty. Johnson Controls Memorandum and Articles of Association provide that, in the event of any such payment, Johnson Controls (i) may seek reimbursement from the buyer, (ii) may have a lien against the Johnson Controls ordinary shares acquired by such buyer and any dividends paid on such shares and (iii) may set-off the amount of the stamp duty against future dividends on such shares. Parties to a share transfer may assume that any stamp duty arising in respect of a transaction in Johnson Controls ordinary shares has been paid unless one or both of such parties is otherwise notified by Johnson Controls.

Dividends paid by us may be subject to Irish dividend withholding tax.

In certain circumstances, as an Irish tax resident company, we will be required to deduct Irish dividend withholding tax (currently at the rate of 20%) from dividends paid to our shareholders. Shareholders that are resident in the U.S., European Union countries (other than Ireland) or other countries with which Ireland has signed a tax treaty (whether the treaty has been ratified or not) generally should not be subject to Irish withholding tax so long as the shareholder has provided its broker, for onward transmission to our qualifying intermediary or other designated agent (in the case of shares held beneficially), or us or our transfer agent (in the case of shares held directly), with all the necessary documentation by the appropriate due date prior to payment of the dividend. However, some shareholders may be subject to withholding tax, which could adversely affect the price of our ordinary shares.

Dividends received by you could be subject to Irish income tax.

Dividends paid in respect of Johnson Controls ordinary shares generally are not subject to Irish income tax where the beneficial owner of these dividends is exempt from dividend withholding tax, unless the beneficial owner of the dividend has some connection with Ireland other than his or her shareholding in Johnson Controls.

Johnson Controls shareholders who receive their dividends subject to Irish dividend withholding tax generally will have no further liability to Irish income tax on the dividend unless the beneficial owner of the dividend has some connection with Ireland other than his or her shareholding in Johnson Controls.

ITEM 1B UNRESOLVED STAFF COMMENTS

The Company has no unresolved written comments regarding its periodic or current reports from the staff of the SEC.

ITEM 2 PROPERTIES

The Company conducts its operations in approximately 70 countries throughout the world, with its world headquarters located in Cork, Ireland and its North American operational headquarters located in Milwaukee, Wisconsin USA. The Company's wholly- and majority-owned facilities primarily consist of manufacturing, sales and service offices, research and development facilities, monitoring centers, and assembly and/or warehouse centers. At September 30, 2019, these properties totaled approximately 44 million square feet of floor space of which 18 million square feet are owned and 26 million square feet are leased. The Company considers its facilities to be suitable for their current uses and adequate for current needs. The majority of the facilities are operating at normal levels based on capacity. The Company does not anticipate difficulty in renewing existing leases as they expire or in finding alternative facilities.

ITEM 3 LEGAL PROCEEDINGS

Gumm v. Molinaroli, et al.

On August 16, 2016, a putative class action lawsuit, Gumm v. Molinaroli, et al., Case No. 16-cv-1093, was filed in the United States District Court for the Eastern District of Wisconsin, naming Johnson Controls, Inc., the individual members of its board of directors at the time of the merger with the Company's merger subsidiary and certain of its officers, the Company and the Company's merger subsidiary as defendants. The complaint asserted various causes of action under the federal securities laws, state law and the Taxpayer Bill of Rights, including that the individual defendants allegedly breached their fiduciary duties and unjustly enriched themselves by structuring the merger among the Company, Tyco and the merger subsidiary in a manner that would result in a United States federal income tax realization event for the putative class of certain Johnson Controls, Inc. shareholders and allegedly result in certain benefits to the defendants, as well as related claims regarding alleged misstatements in the proxy statement/ prospectus distributed to the Johnson Controls, Inc. shareholders, conversion and breach of contract. The complaint also asserted that Johnson Controls, Inc., the Company and the Company's merger subsidiary aided and abetted the individual defendants in their breach of fiduciary duties and unjust enrichment. The complaint seeks, among other things, disgorgement of profits and damages. On September 30, 2016, approximately one month after the closing of the merger, plaintiffs filed a preliminary injunction motion seeking, among other items, to compel Johnson Controls, Inc. to make certain intercompany payments that plaintiffs contend will impact the United States federal income tax consequences of the merger to the putative class of certain Johnson Controls, Inc. shareholders and to enjoin Johnson Controls, Inc. from reporting to the Internal Revenue Service the capital gains taxes payable by this putative class as a result of the closing of the merger. The court held a hearing on the preliminary injunction motion on January 4, 2017, and on January 25, 2017, the judge denied the plaintiffs' motion. Plaintiffs filed an amended complaint on February 15, 2017, and the Company filed a motion to dismiss on April 3, 2017. On October 17, 2019, the court heard oral argument on the motion to dismiss and took the matter under advisement. Although the Company believes it has substantial defenses to plaintiffs' claims, it is not able to predict the outcome of this action.

Refer to Note 22, "Commitments and Contingencies," of the notes to consolidated financial statements for discussion of environmental, asbestos, insurable liabilities and other litigation matters, which is incorporated by reference herein and is considered an integral part of Part I, Item 3, "Legal Proceedings."

ITEM 4 MINE SAFETY DISCLOSURES

Not applicable.

EXECUTIVE OFFICERS OF THE REGISTRANT

Pursuant to General Instruction G(3) of Form 10-K, the following list of executive officers of the Company as of November 21, 2019 is included as an unnumbered Item in Part I of this report in lieu of being included in the Company's Proxy Statement relating to the annual general meeting of shareholders to be held on March 4, 2020.

Tomas Brannemo, 48, was elected Vice President and President, Building Solutions, Europe, Middle East, Africa and Latin America in September 2019. He previously served as Senior Vice President and President, Water Infrastructure and Europe Commercial Team of Xylem Inc., a leading global water technology company. At Xylem, he also served as Senior Vice President and President, Transport and Treatment, from 2017 to 2019 and other roles from 2010 to 2017. Between 2006 and 2010, he held various marketing, sales and engineering positions at Volvo Construction Company.

John Donofrio, 57, has served as Executive Vice President and General Counsel of the Company since November 15, 2017. He previously served as Vice President, General Counsel and Secretary of Mars, Incorporated, a global food manufacturer from October 2013 to November 2017. Before joining Mars in October 2013, Mr. Donofrio was Executive Vice President, General Counsel and Secretary for The Shaw Group Inc., a global engineering and construction company, from October 2009 until February 2013. Prior to joining Shaw, Mr. Donofrio was Senior Vice President, General Counsel and Chief Compliance Officer at Visteon Corporation, a global automotive supplier, a position he held from 2005 until October 2009. Mr. Donofrio has been a Director of FARO Technologies, Inc., a designer, developer, manufacturer and marketer of software driven, 3D measurement, imaging and realization systems, since 2008.

Michael J. Ellis, 63, was elected Executive Vice President and Chief Customer & Digital Officer, effective October 2019. From May 2018 to October 2019, he served as a Managing Director at Accenture, a global provider of professional services in strategy, consulting, digital, technology and operations. He previously served as Chairman and CEO of ForgeRock, a global digital security software company, from 2012 to 2018. Prior to joining ForgeRock, from 2008 to 2012, he held various senior executive roles at SAP SE, a global provider of enterprise software solutions. Previously, he also served as Chief Executive Officer of Univa, a leading innovator in enterprise-grade workload management and optimization solutions, and as Senior Vice President Business Development at i2 Technologies, a provider of supply chain solutions.

Visal Leng, 49, was elected Vice President and President, Building Solutions, Asia Pacific in September 2018. He previously served as President Asia Pacific of Baker Hughes, the world's first and only full stream provider of integrated oilfield products, services and digital solutions, from July 2017 to September 2018. Prior to the merger of Baker Hughes with General Electric in 2017, he held a number of roles with increasing responsibility in General Electric from his hire in November 1996, including President of its Asia Pacific oil and gas operations from January 2014 to July 2017; and Asia Pacific Regional General Manager from October 2011 to December 2013.

Lynn Minella, 61, has served as Executive Vice President and Chief Human Resources Officer since June 2017. Prior to joining Johnson Controls, she served as Group Human Resources Director at BAE Systems Plc from June 2012 to June 2017. Prior to BAE Systems, she was with Air Products and Chemicals, Inc. from 2004 until 2012 where she was the Senior Vice President of Human Resources and Communications. Earlier in her career she also held a variety of human resources roles of increasing responsibility at International Business Machines Corporation.

George R. Oliver, 60, has served as Chief Executive Officer and Chairman of the Board since September 2017. He previously served as our President and Chief Operating Officer following the completion of the merger in September 2016. Prior to that, Mr. Oliver was Tyco's Chief Executive Officer, a position he held since September 2012. He joined Tyco in July 2006, and served as President of a number of operating segments from 2007 through 2011. Before joining Tyco, he served in operational leadership roles of increasing responsibility at several General Electric divisions. Mr. Oliver also serves as a Director on the board of Raytheon Company, a company specializing in cybersecurity and defense throughout the world.

Rodney M. Rushing, 53, was elected Vice President and President, Building Solutions, North America in November 2016. From 2015 to November 2016 he served as Global Vice President and General Manager, Global Products - Direct Expansion, overseeing the integration of Johnson Controls, Inc.'s joint venture with Hitachi Air Conditioning. Prior thereto, from 2013 to 2015 he was Vice President and General Manager, Products and Distribution North America and from 2009 to 2013 he was Vice President and General Manager of Unitary Products. Mr. Rushing first joined Johnson Controls, Inc. in 1990, and has held a number of roles of increasing responsibility in its field and product organization.

Brian J. Stief, 63, has served as Vice Chairman and Chief Financial Officer since November 2019. He also serves as the Company's Principal Financial Officer. He was elected Executive Vice President and Chief Financial Officer following the completion of the Merger in September 2016 and served in that role until November 2019. Prior to the Merger, he was elected Executive Vice President and Chief Financial Officer of Johnson Controls, Inc. in September 2014. He previously served Johnson Controls, Inc. as Vice President and Corporate Controller from 2010 to 2014. Prior to joining Johnson Controls, Inc. in 2010, Mr. Stief was a partner with PricewaterhouseCoopers LLP (an audit and assurance, tax and consulting services provider), which he joined in 1979 and in which he became partner in 1989.

Robert VanHimbergen, 43, has served as Vice President and Corporate Controller since December 2017. Mr. VanHimbergen joined Johnson Controls in 2007 as the Corporate Director of Global Accounting and has held various Corporate and Power Solutions positions of increasing responsibility. His most recent position was serving as the Chief Financial Officer of Yanfeng Automotive Interiors, an Adient joint venture, formed in 2015. Mr. VanHimbergen began his career at PricewaterhouseCoopers in 1998.

Jeff M. Williams, 58, has served as Vice President and President, Global Products, Building Technologies and Solutions since July 2019. He previously served as Vice President and President, Building Solutions, Europe, Middle East, Africa and Latin America from March 2017 to July 2019. Prior thereto, he served as Vice President - Enterprise Operations - Engineering and Supply Chain from January 2015 through the Merger to March 2017. With respect to roles at Johnson Controls, Inc., he served as Vice President, Program Management Office from 2015 to 2016, as Group Vice President and General Manager Global Seating & Supply Chain from 2013 to 2014, and as Group Vice President and General Manager Customer Group Americas from 2010 to 2012. Mr. Williams joined Johnson Controls, Inc. in 1984.

There are no family relationships, as defined by the instructions to this item, among the Company’s executive officers.

PART II

ITEM 5 MARKET FOR REGISTRANT’S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

The shares of the Company’s ordinary shares are traded on the New York Stock Exchange under the symbol "JCI."

Title of Class	Number of Record Holders as of September 30, 2019
Ordinary Shares, $0.01 par value	35,367

	Dividends	
	2019	2018
First Quarter	$ 0.26	$ 0.26
Second Quarter	0.26	0.26
Third Quarter	0.26	0.26
Fourth Quarter	0.26	0.26
Year	$ 1.04	$ 1.04

In November 2018, the Company's Board of Directors approved a $1 billion increase to its existing share repurchase authorization. In March 2019, the Company's Board of Directors approved an additional $8.5 billion increase to its existing share repurchase authorization, subject to the completion of the previously announced sale of the Company's Power Solutions business, which closed on April 30, 2019. The share repurchase program does not have an expiration date and may be amended or terminated by the Board of Directors at any time without prior notice. During fiscal year 2019, the Company repurchased approximately $5,983 million of its ordinary shares, of which $4,035 million of its ordinary shares were purchased through publicly announced "modified Dutch auction" tender offer and $1,948 million of its ordinary shares were purchased on an open market. As of September 30, 2019, approximately $4.6 billion remains available under the share repurchase program.

The following table presents information regarding the repurchase of the Company's ordinary shares by the Company as part of the publicly announced program during the three months ended September 30, 2019.

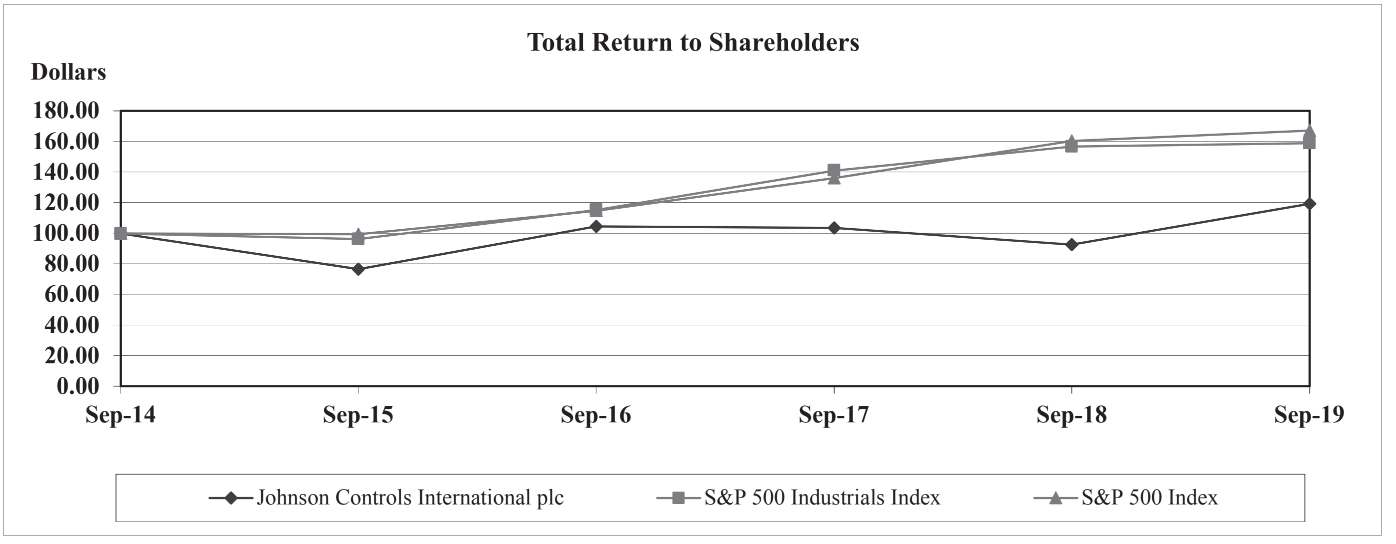
Period	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of the Publicly Announced Program	Approximate Dollar Value of Shares that May Yet be Purchased under the Programs
7/1/19 - 7/31/19				
Purchases by Company	7,004,690	$ 41.39	7,004,690	$ 5,136,315,065
8/1/19 - 8/31/19				
Purchases by Company	7,225,000	42.08	7,225,000	4,832,308,943
9/1/19 - 9/30/19				
Purchases by Company	6,130,000	43.43	6,130,000	4,566,076,675

During the three months ended September 30, 2019, acquisitions of shares by the Company from certain employees in order to satisfy employee tax withholding requirements in connection with the vesting of restricted shares were not material.

The following information in Item 5 is not deemed to be "soliciting material" or to be "filed" with the SEC or subject to Regulation 14A or 14C under the Securities Exchange Act of 1934 ("Exchange Act") or to the liabilities of Section 18 of the Exchange Act, and will not be deemed to be incorporated by reference into any filing under the Securities Act of 1933 or the Exchange Act, except to the extent the Company specifically incorporates it by reference into such a filing.

The line graph below compares the cumulative total shareholder return on the Company's ordinary shares with the cumulative total return of companies on the Standard & Poor’s ("S&P’s") 500 Stock Index and the companies on the S&P 500 Industrials Index. This graph assumes the investment of $100 on September 30, 2014 and the reinvestment of all dividends since that date.

COMPANY/INDEX	Sep14	Sep15	Sep16	Sep17	Sep18	Sep19
Johnson Controls International plc	100.00	76.52	104.49	103.54	92.56	119.32
S&P 500 Industrials Index	100.00	96.33	115.32	141.08	156.82	158.95
S&P 500 Index	100.00	99.39	114.72	136.07	160.44	167.27



The Company’s transfer agent’s contact information is as follows:

EQ Shareowner Services
P.O. Box 64874
St. Paul, MN 55164-0874
(877) 602-7397

ITEM 6 SELECTED FINANCIAL DATA

The following selected financial data reflects the results of operations, financial position data and ordinary share information for the fiscal years ended September 30, 2015 through September 30, 2019 (dollars in millions, except per share data). Certain amounts have been revised to reflect the retrospective application of the classification of the Power Solutions business as a discontinued operation for all periods presented.

	Year ended September 30,				
	2019	2018	2017	2016	2015
OPERATING RESULTS					
Net sales	$ 23,968	$ 23,400	$ 22,835	$ 14,184	$ 10,510
Segment EBITA (1)	3,041	3,138	2,831	1,427	1,086
Income (loss) from continuing operations attributable to Johnson Controls (6)	1,100	1,175	672	(10)	42
Net income (loss) attributable to Johnson Controls	5,674	2,162	1,611	(868)	1,563
Earnings (loss) per share from continuing operations (6)					
Basic	$ 1.26	$ 1.27	$ 0.72	$ (0.01)	$ 0.06
Diluted	1.26	1.26	0.71	(0.01)	0.06
Return on average shareholders' equity attributable to Johnson Controls (2) (6)	5%	6%	3%	— %	—%
Capital expenditures	$ 586	$ 645	$ 760	$ 491	$ 418
Depreciation and amortization	825	824	919	382	240
Number of employees	104,000	122,000	121,000	209,000	139,000
FINANCIAL POSITION					
Working capital (as defined) (3)	$ 975	$ 471	$ 449	$ (619)	$ (220)
Total assets	42,287	48,797	51,884	63,179	29,590
Long-term debt	6,708	9,623	11,885	10,966	5,237
Total debt	7,219	10,930	13,465	12,636	6,073
Shareholders' equity attributable to Johnson Controls	19,766	21,164	20,447	24,118	10,335
Total debt to capitalization (4)	27%	34%	40%	34 %	37%
Net book value per share (5)	$ 25.42	$ 22.88	$ 22.03	$ 25.77	$ 15.96
ORDINARY SHARE INFORMATION					
Dividends per share	$ 1.04	$ 1.04	$ 1.00	$ 1.16	$ 1.04
Market prices					
High	$ 44.65	$ 42.60	$ 46.17	$ 48.97	$ 54.52
Low	28.30	32.89	36.74	30.30	38.48
Weighted average shares (in millions)					
Basic	870.2	925.7	935.3	667.4	655.2
Diluted	874.3	931.7	944.6	672.6	661.5
Number of shareholders	35,367	37,836	40,260	41,299	35,425

(1) Segment earnings before interest, taxes and amortization ("EBITA") is calculated as income from continuing operations before income taxes and noncontrolling interests, excluding general corporate expenses, intangible asset amortization, net financing charges, restructuring and impairment costs, and net mark-to-market adjustments related to pension and postretirement plans and restricted asbestos investments. Refer to Note 19, "Segment Information," of the notes to consolidated financial statements for a reconciliation of segment EBITA to income from continuing operations before income taxes.

(2) Return on average shareholders' equity attributable to Johnson Controls represents income from continuing operations attributable to Johnson Controls divided by average shareholders' equity attributable to Johnson Controls.

(3) Working capital is defined as current assets less current liabilities, excluding cash, short-term debt, the current portion of long-term debt, and the current portions of assets and liabilities held for sale.

(4) Total debt to total capitalization represents total debt divided by the sum of total debt and shareholders' equity attributable to Johnson Controls.

(5) Net book value per share represents shareholders' equity attributable to Johnson Controls divided by the number of shares outstanding at the end of the period.

(6) Income (loss) from continuing operations attributable to Johnson Controls includes $235 million, $255 million, $347 million, $222 million and $204 million of significant restructuring and impairment costs in fiscal year 2019, 2018, 2017, 2016 and 2015, respectively. It also includes $618 million, $(24) million, $(384) million, $341 million and $368 million of net mark-to-market losses (gains) in fiscal year 2019, 2018, 2017, 2016 and 2015, respectively. The preceding amounts are stated on a pre-tax basis.

ITEM 7 MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

General

The Company provides facility systems and services including comfort and energy management for the residential and non-residential buildings markets, security products and services, and fire detection and suppression products and services.

This discussion summarizes the significant factors affecting the consolidated operating results, financial condition and liquidity of the Company for the three-year period ended September 30, 2019. This discussion should be read in conjunction with Item 8, the consolidated financial statements and the notes to consolidated financial statements.

FISCAL YEAR 2019 COMPARED TO FISCAL YEAR 2018

Net Sales

	Year Ended September 30,		
(in millions)	2019	2018	Change
Net sales	$ 23,968	$ 23,400	2%

The increase in net sales was due to higher organic sales ($1,181 million) and acquisitions ($22 million), partially offset by the unfavorable impact of foreign currency translation ($463 million) and lower sales due to business divestitures ($172 million). The increase in organic sales related to higher volumes across all segments. Excluding the impact of foreign currency translation and business acquisitions and divestitures, net sales increased 5% as compared to the prior year. Refer to the "Segment Analysis" below within Item 7 for a discussion of net sales by segment.

Cost of Sales / Gross Profit

	Year Ended September 30,		
(in millions)	2019	2018	Change
Cost of sales	$ 16,275	$ 15,733	3%
Gross profit	7,693	7,667	—%
% of sales	32.1%	32.8%	

Cost of sales increased and gross profit as a percentage of sales decreased by 70 basis points. Gross profit increased due to higher volumes across all segments, partially offset by business divestitures and higher operating costs. Net mark-to-market adjustments had a net unfavorable year-over-year impact on cost of sales of $123 million ($128 million charge in fiscal 2019 compared to a $5 million charge in fiscal 2018) primarily due to a decrease in discount rates in the current year. Foreign currency translation had a favorable impact on cost of sales of approximately $304 million. Refer to the "Segment Analysis" below within Item 7 for a discussion of segment earnings before interest, taxes and amortization ("EBITA") by segment.

Selling, General and Administrative Expenses

(in millions)	Year Ended September 30, 2019	2018	Change
Selling, general and administrative expenses	$ 6,244	$ 5,642	11%
% of sales	26.1%	24.1%	

Selling, general and administrative expenses ("SG&A") increased by $602 million, and SG&A as a percentage of sales increased by 200 basis points. The increase in SG&A was primarily due to net mark-to-market adjustments, a $114 million gain on sale of the Scott Safety business in the Global Products segment in the prior year and a current year environmental charge, partially offset by productivity savings and cost synergies, net of incremental investments, and a current year tax indemnification reserve release. The net mark-to-market adjustments had a net unfavorable year-over-year impact on SG&A of $519 million ($490 million loss in fiscal 2019 compared to a $29 million gain in fiscal 2018) primarily due to a decrease in discount rates in the current year. Foreign currency translation had a favorable impact on SG&A of $94 million. Refer to the "Segment Analysis" below within Item 7 for a discussion of segment EBITA by segment.

Restructuring and Impairment Costs

(in millions)	Year Ended September 30, 2019	2018	Change
Restructuring and impairment costs	$ 235	$ 255	-8%

Refer to Note 16, "Significant Restructuring and Impairment Costs," and Note 17, "Impairment of Long-Lived Assets," of the notes to consolidated financial statements for further disclosure related to the Company's restructuring plans and impairment costs.

Net Financing Charges

(in millions)	Year Ended September 30, 2019	2018	Change
Net financing charges	$ 350	$ 401	-13%

Refer to Note 9, "Debt and Financing Arrangements," of the notes to consolidated financial statements for further disclosure related to the Company's net financing charges.

Equity Income

(in millions)	Year Ended September 30, 2019	2018	Change
Equity income	$ 192	$ 177	8%

The increase in equity income was primarily due to higher income at certain partially-owned affiliates within the Building Solutions EMEA/LA segment and the Johnson Controls - Hitachi joint venture. Refer to the "Segment Analysis" below within Item 7 for a discussion of segment EBITA by segment.

Income Tax Provision

(in millions)	Year Ended September 30, 2019	2018	Change
Income tax provision (benefit)	$ (233)	$ 197	*
Effective tax rate	-22%	13%	

* Measure not meaningful

The statutory tax rate in Ireland is being used as a comparison since the Company is domiciled in Ireland. The effective rate for continuing operations is below the statutory rate of 12.5% for fiscal 2019 primarily due to tax audit reserve adjustments, the income tax effects of mark-to-market adjustments, a tax indemnification reserve release, the tax benefits of an asset held for sale impairment charge and continuing global tax planning initiatives, partially offset by valuation allowance adjustments as a result of tax law changes, a discrete tax charge related to newly enacted regulations related to U.S. Tax Reform and tax rate differentials. The effective rate for continuing operations is above the statutory rate of 12.5% for fiscal 2018 primarily due to the discrete net impacts of U.S. Tax Reform, final income tax effects of the completed divestiture of the Scott Safety business and valuation allowance adjustments, partially offset by tax audit closures, tax benefits due to change in entity tax status, the benefits of continuing global tax planning initiatives and tax rate differentials. The fiscal 2019 effective tax rate decreased as compared to the fiscal 2018 effective tax rate primarily due to the discrete tax items described below and tax planning initiatives. The fiscal year 2019 and 2018 global tax planning initiatives related primarily to changes in entity tax status, global financing structures and alignment of the Company's global business functions in a tax efficient manner. Refer to Note 18, "Income Taxes," of the notes to consolidated financial statements for further details.

Income From Discontinued Operations, Net of Tax

	Year Ended September 30,		
(in millions)	2019	2018	Change
Income from discontinued operations, net of tax	$ 4,598	$ 1,034	*

* Measure not meaningful

Refer to Note 3, "Discontinued Operations," of the notes to consolidated financial statements for further information.

Income Attributable to Noncontrolling Interests

	Year Ended September 30,		
(in millions)	2019	2018	Change
Income from continuing operations attributable to noncontrolling interests	$ 189	$ 174	9%
Income from discontinued operations attributable to noncontrolling interests	24	47	-49%

The increase in income from continuing operations attributable to noncontrolling interests was primarily due to higher net income at certain partially-owned affiliates within the Global Products segment.

Refer to Note 3, "Discontinued Operations," of the notes to consolidated financial statements for further information regarding the Company's discontinued operations.

Net Income Attributable to Johnson Controls

	Year Ended September 30,		
(in millions)	2019	2018	Change
Net income attributable to Johnson Controls	$ 5,674	$ 2,162	*

* Measure not meaningful

The increase in net income attributable to Johnson Controls was primarily due to the gain on sale of the Power Solutions business and lower income tax provision, partially offset by higher SG&A. Fiscal 2019 diluted earnings per share attributable to Johnson Controls was $6.49 compared to $2.32 in fiscal 2018.

Comprehensive Income Attributable to Johnson Controls

(in millions)	Year Ended September 30, 2019	2018	Change
Comprehensive income attributable to Johnson Controls	$ 5,350	$ 1,689	*

* Measure not meaningful

The increase in comprehensive income attributable to Johnson Controls was due to higher net income attributable to Johnson Controls ($3,512 million) and an increase in other comprehensive income attributable to Johnson Controls ($149 million) resulting primarily from foreign currency translation adjustments. These year-over-year favorable foreign currency translation adjustments were primarily driven by the weakening of the euro and British pound currencies against the U.S. dollar in the prior year.

SEGMENT ANALYSIS

On October 1, 2018, the Company adopted Accounting Standards Update ("ASU") No. 2016-01, "Financial Instruments - Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities." The new standard requires the mark-to-market of marketable securities investments previously recorded within accumulated other comprehensive income on the statement of financial position be recorded in the statement of income on a prospective basis beginning as of the adoption date. As these restricted investments do not relate to the underlying operating performance of its business, the Company's definition of segment earnings excludes the mark-to-market adjustments beginning in the first quarter of fiscal 2019.

Management evaluates the performance of its business units based primarily on segment EBITA, which represents income from continuing operations before income taxes and noncontrolling interests, excluding general corporate expenses, intangible asset amortization, net financing charges, restructuring and impairment costs, and net mark-to-market adjustments related to pension and postretirement plans and restricted asbestos investments.

	Net Sales for the Year Ended September 30,			Segment EBITA for the Year Ended September 30,		
(in millions)	2019	2018	Change	2019	2018	Change
Building Solutions North America	$ 9,031	$ 8,679	4%	$ 1,153	$ 1,109	4%
Building Solutions EMEA/LA	3,655	3,696	-1%	368	344	7%
Building Solutions Asia Pacific	2,658	2,553	4%	341	347	-2%
Global Products	8,624	8,472	2%	1,179	1,338	-12%
	$ 23,968	$ 23,400	2%	$ 3,041	$ 3,138	-3%

Net Sales:

- The increase in Building Solutions North America was due to higher volumes ($380 million), partially offset by the unfavorable impact of foreign currency translation ($28 million). The increase in volumes was primarily attributable to higher installation / service sales.

- The decrease in Building Solutions EMEA/LA was due to the unfavorable impact of foreign currency translation ($206 million) and lower volumes due to business divestitures ($5 million), partially offset by higher volumes ($165 million) and incremental sales related to a business acquisition ($5 million). The increase in volumes was primarily attributable to higher installation / service sales.

- The increase in Building Solutions Asia Pacific was due to higher volumes ($190 million) and incremental sales related to a business acquisition ($1 million), partially offset by the unfavorable impact of foreign currency translation ($86 million). The increase in volumes was primarily attributable to higher installation / service sales.

- The increase in Global Products was due to higher volumes ($446 million) and incremental sales related to business acquisitions ($16 million), partially offset by lower volumes related to business divestitures ($167 million) and the unfavorable impact of foreign currency translation ($143 million). The increase in volumes was primarily attributable to higher building management, HVAC and refrigeration equipment, and specialty products sales.

Segment EBITA:

- The increase in Building Solutions North America was due to favorable volumes ($92 million) and prior year integration costs ($25 million), partially offset by higher SG&A, including incremental salesforce investments, and unfavorable mix ($45 million), current year integration costs ($26 million) and the unfavorable impact of foreign currency translation ($2 million).

- The increase in Building Solutions EMEA/LA was due to favorable volumes / mix ($57 million), higher equity income ($11 million), prior year integration costs ($6 million) and incremental income related to a business acquisition ($1 million), partially offset by the unfavorable impact of foreign currency translation ($35 million), higher SG&A, including incremental salesforce investments ($12 million) and current year integration costs ($4 million).

- The decrease in Building Solutions Asia Pacific was due to higher SG&A, including incremental salesforce investments ($18 million), the unfavorable impact of foreign currency translation ($8 million), current year integration costs ($2 million) and lower equity income ($1 million), partially offset by net favorable volumes / mix ($23 million).

- The decrease in Global Products was due to a current year environmental charge ($140 million), a prior year gain on sale of Scott Safety ($114 million), higher SG&A and operating expenses, including product investments and prior year gains on business divestitures, net of productivity savings ($32 million), current year integration costs ($30 million), the unfavorable impact of foreign currency translation ($20 million), and lower income due to business divestitures and acquisitions ($19 million). These items were partially offset by favorable volumes / mix ($166 million), prior year integration costs ($27 million) and higher equity income ($3 million).

FISCAL YEAR 2018 COMPARED TO FISCAL YEAR 2017

Net Sales

(in millions)	Year Ended September 30, 2018	Year Ended September 30, 2017	Change
Net sales	$ 23,400	$ 22,835	2%

The increase in net sales was due to higher sales ($1,004 million) and the favorable impact of foreign currency translation ($316 million), partially offset by lower sales due to business divestitures ($755 million). The increase in sales related to higher volumes across all segments. Excluding the impact of foreign currency translation, business divestitures and nonrecurring purchase accounting adjustments, net sales increased 5% as compared to the prior year. Refer to the segment analysis below within Item 7 for a discussion of net sales by segment.

Cost of Sales / Gross Profit

(in millions)	Year Ended September 30, 2018	Year Ended September 30, 2017	Change
Cost of sales	$ 15,733	$ 15,305	3%
Gross profit	7,667	7,530	2%
% of sales	32.8%	33.0%	

Cost of sales increased and gross profit as a percentage of sales decreased by 20 basis points. Gross profit increased due to prior year nonrecurring purchase accounting adjustments ($68 million), and higher volumes and favorable mix across all segments, partially offset by business divestitures and higher operating costs. Net mark-to-market adjustments had a net unfavorable year-over-year impact on cost of sales of $45 million ($5 million charge in fiscal 2018 compared to a $40 million gain in fiscal 2017) primarily due to a decrease in U.S. investment returns. Foreign currency translation had an unfavorable impact on cost of sales of approximately $221 million. Refer to the segment analysis below within Item 7 for a discussion of EBITA by segment.

Selling, General and Administrative Expenses

(in millions)	Year Ended September 30, 2018	2017	Change
Selling, general and administrative expenses	$ 5,642	$ 5,723	-1%
% of sales	24.1%	25.1%	

SG&A decreased by $81 million, and SG&A as a percentage of sales decreased by 100 basis points. The decrease in SG&A was primarily due to productivity savings and costs synergies, business divestitures and a gain on sale of the Scott Safety business in the Global Products segment ($114 million). The net favorable year-over-year impact on SG&A resulting from transaction and integration costs was $184 million. Foreign currency translation had an unfavorable impact on SG&A of $66 million. The net mark-to-market adjustments had a net unfavorable year-over-year impact on SG&A of $315 million ($29 million gain in fiscal 2018 compared to a $344 million gain in fiscal 2017) primarily due to a decrease in U.S. investment returns. Refer to the segment analysis below within Item 7 for a discussion of segment EBITA by segment.

Restructuring and Impairment Costs

(in millions)	Year Ended September 30, 2018	2017	Change
Restructuring and impairment costs	$ 255	$ 347	-27%

Refer to Note 16, "Significant Restructuring and Impairment Costs," of the notes to consolidated financial statements for further disclosure related to the Company's restructuring plans.

Net Financing Charges

(in millions)	Year Ended September 30, 2018	2017	Change
Net financing charges	$ 401	$ 466	-14%

Refer to Note 9, "Debt and Financing Arrangements," of the notes to consolidated financial statements for further disclosure related to the Company's net financing charges.

Equity Income

(in millions)	Year Ended September 30, 2018	2017	Change
Equity income	$ 177	$ 157	13%

The increase in equity income was primarily due to higher income at the Johnson Controls - Hitachi joint venture. Refer to the segment analysis below within Item 7 for a discussion of segment EBITA by segment.

Income Tax Provision

(in millions)	Year Ended September 30, 2018	2017	Change
Income tax provision	$ 197	$ 322	-39%
Effective tax rate	13%	28%	

The statutory tax rate in Ireland is being used as a comparison since the Company is domiciled in Ireland. The effective rate for continuing operations is above the statutory rate of 12.5% for fiscal 2018 primarily due to the discrete net impacts of U.S. Tax Reform, final income tax effects of the completed divestiture of the Scott Safety business and valuation allowance adjustments, partially offset by tax audit closures, tax benefits due to change in entity tax status, the benefits of continuing global tax planning initiatives and tax rate differentials. The effective rate is above the statutory rate of 12.5% for fiscal 2017 primarily due to the establishment of a deferred tax liability on the outside basis difference of the Company's investment in certain subsidiaries related to the divestiture of the Scott Safety business, the income tax effects of mark-to-market adjustments and tax rate differentials, partially offset by the jurisdictional mix of significant restructuring and impairment costs, Tyco Merger transaction and integration costs, purchase accounting adjustments, tax audit closures, a tax benefit due to changes in entity tax status and the benefits of continuing global tax planning initiatives. The fiscal 2018 effective tax rate decreased as compared to the fiscal 2017 effective tax rate primarily due to discrete tax items and tax planning initiatives. The fiscal year 2018 and 2017 global tax planning initiatives related primarily to foreign tax credit planning, changes in entity tax status, global financing structures and alignment of the Company's global business functions in a tax efficient manner. Refer to Note 18, "Income Taxes," of the notes to consolidated financial statements for further details.

Loss From Discontinued Operations, Net of Tax

(in millions)	Year Ended September 30, 2018	2017	Change
Income from discontinued operations, net of tax	$ 1,034	$ 990	4%

Refer to Note 3, "Discontinued Operations," of the notes to consolidated financial statements for further information.

Income Attributable to Noncontrolling Interests

(in millions)	Year Ended September 30, 2018	2017	Change
Income from continuing operations attributable to noncontrolling interests	$ 174	$ 157	11%
Income from discontinued operations attributable to noncontrolling interests	47	51	-8%

The increase in income from continuing operations attributable to noncontrolling interests was primarily due to higher net income related to the Johnson Controls - Hitachi joint venture.

Refer to Note 3, "Discontinued Operations," of the notes to consolidated financial statements for further information regarding the Company's discontinued operations.

Net Income Attributable to Johnson Controls

(in millions)	Year Ended September 30, 2018	2017	Change
Net income attributable to Johnson Controls	$ 2,162	$ 1,611	34%

The increase in net income attributable to Johnson Controls was primarily due to higher gross profit, lower income tax provision, lower restructuring and impairment costs, lower SG&A and lower net financing charges. Fiscal 2018 diluted earnings per share attributable to Johnson Controls was $2.32 compared to $1.71 in fiscal 2017.

Comprehensive Income Attributable to Johnson Controls

(in millions)	Year Ended September 30, 2018	2017	Change
Comprehensive income attributable to Johnson Controls	$ 1,689	$ 1,710	-1%

The decrease in comprehensive income attributable to Johnson Controls was due to a decrease in other comprehensive income attributable to Johnson Controls ($572 million) resulting primarily from unfavorable foreign currency translation adjustments, partially offset by higher net income attributable to Johnson Controls ($551 million). These year-over-year unfavorable foreign currency translation adjustments were primarily driven by the weakening of the British pound and euro currencies against the U.S. dollar.

Segment Analysis

Management evaluates the performance of its business units based primarily on segment EBITA, which represents income from continuing operations before income taxes and noncontrolling interests, excluding general corporate expenses, intangible asset amortization, net financing charges, restructuring and impairment costs, and net mark-to-market adjustments related to pension and postretirement plans and restricted asbestos investments.

	Net Sales for the Year Ended September 30,			Segment EBITA for the Year Ended September 30,		
(in millions)	2018	2017	Change	2018	2017	Change
Building Solutions North America	$ 8,679	$ 8,341	4%	$ 1,109	$ 1,039	7%
Building Solutions EMEA/LA	3,696	3,595	3%	344	290	19%
Building Solutions Asia Pacific	2,553	2,444	4%	347	323	7%
Global Products	8,472	8,455	—%	1,338	1,179	13%
	$ 23,400	$ 22,835	2%	$ 3,138	$ 2,831	11%

* Measure not meaningful

Net Sales:

- The increase in Building Solutions North America was due to higher volumes ($343 million) and the favorable impact of foreign currency translation ($20 million), partially offset by the impact of prior year nonrecurring purchase accounting adjustments ($25 million). The increase in volumes was primarily attributable to higher HVAC, controls, fire and security sales.

- The increase in Building Solutions EMEA/LA was due to the favorable impact of foreign currency translation ($132 million), higher volumes ($63 million) and incremental sales related to a business acquisition ($2 million), partially offset by lower volumes related to a business divestiture ($80 million) and the impact of prior year nonrecurring purchase accounting adjustments ($16 million). The increase in volumes was primarily attributable to strong service growth which was positive across all regions led by Europe and Latin America.

- The increase in Building Solutions Asia Pacific was due to higher volumes ($61 million), the favorable impact of foreign currency translation ($61 million) and the impact of prior year nonrecurring purchase accounting adjustments ($1 million), partially offset by lower volumes related to a business divestiture ($14 million). The increase in volumes was primarily attributable to higher service sales.

- The increase in Global Products was due to higher volumes ($571 million), the favorable impact of foreign currency translation ($103 million) and the impact of prior year nonrecurring purchase accounting adjustments ($6 million), partially offset by lower volumes related to business divestitures ($663 million). The increase in volumes was primarily attributable to higher building management, HVAC and refrigeration equipment, and specialty products sales.

Segment EBITA:

- The increase in Building Solutions North America was due to favorable volumes / mix ($100 million), prior year integration costs ($42 million), prior year transaction costs ($13 million), and the favorable impact of foreign currency translation ($1 million), partially offset by higher SG&A including incremental salesforce investments ($37 million), current year integration costs ($25 million) and prior year nonrecurring purchase accounting adjustments ($24 million).

- The increase in Building Solutions EMEA/LA was due to a prior year unfavorable arbitration award ($50 million), favorable volumes / mix ($26 million), lower SG&A ($14 million), the favorable impact of foreign currency translation ($7 million), prior year integration costs ($6 million) and prior year transaction costs ($5 million), partially offset by prior year nonrecurring purchase accounting adjustments ($23 million), incremental salesforce investments ($14 million), current year integration costs ($6 million), higher operating costs ($5 million), lower equity income ($4 million) and lower income due to a business divestiture ($2 million).

- The increase in Building Solutions Asia Pacific was due to higher volumes / mix ($33 million), prior year integration costs ($5 million), prior year transaction costs ($2 million), prior year nonrecurring purchase accounting adjustments ($2 million) and the favorable impact of foreign currency translation ($1 million), partially offset by higher SG&A including incremental salesforce investments ($15 million), and unfavorable pricing ($4 million).

- The increase in Global Products was due to favorable volumes / mix ($219 million), a gain on sale of Scott Safety ($114 million), prior year nonrecurring purchase accounting adjustments ($71 million), higher equity income ($25 million), prior year integration costs ($25 million), the favorable impact of foreign currency translation ($20 million) and prior year transaction costs ($13 million). These items were partially offset by lower income due to business divestitures ($167 million), higher SG&A and operating expenses including planned incremental global product and channel investments, partially offset by productivity savings and gains on business divestitures ($134 million), and current year integration costs ($27 million).

GOODWILL, LONG-LIVED ASSETS AND OTHER INVESTMENTS

Goodwill at September 30, 2019 was $18.2 billion, $0.2 billion lower than the prior year. The decrease was primarily due to the impact of foreign currency translation.

Goodwill reflects the cost of an acquisition in excess of the fair values assigned to identifiable net assets acquired. The Company reviews goodwill for impairment during the fourth fiscal quarter or more frequently if events or changes in circumstances indicate the asset might be impaired. The Company performs impairment reviews for its reporting units, which have been determined to be the Company’s reportable segments or one level below the reportable segments in certain instances, using a fair value method based on management’s judgments and assumptions or third party valuations. The fair value of a reporting unit refers to the price that would be received to sell the unit as a whole in an orderly transaction between market participants at the measurement date. In estimating the fair value, the Company uses multiples of earnings based on the average of published multiples of earnings of comparable entities with similar operations and economic characteristics and applies to the Company's average of historical and future financial results. In certain instances, the Company uses discounted cash flow analyses or estimated sales price to further support the fair value estimates. The inputs utilized in the analyses are classified as Level 3 inputs within the fair value hierarchy as defined in ASC 820, "Fair Value Measurement." The estimated fair value is then compared with the carrying amount of the reporting unit, including recorded goodwill. The Company is subject to financial statement risk to the extent that the carrying amount exceeds the estimated fair value.

The assumptions included in the impairment tests require judgment, and changes to these inputs could impact the results of the calculations. The primary assumptions used in the impairment tests were management's projections of future cash flows. Although the Company's cash flow forecasts are based on assumptions that are considered reasonable by management and consistent with the plans and estimates management is using to operate the underlying businesses, there are significant judgments in determining the expected future cash flows attributable to a reporting unit.

Indefinite-lived other intangible assets are also subject to at least annual impairment testing. A considerable amount of management judgment and assumptions are required in performing the impairment tests.

While the Company believes the judgments and assumptions used in the impairment tests are reasonable and no impairments of goodwill or indefinite-lived assets existed during fiscal years 2019, 2018 and 2017, different assumptions could change the estimated fair values and, therefore, impairment charges could be required, which could be material to the consolidated financial statements.

The Company reviews long-lived assets, including tangible assets and other intangible assets with definitive lives, for impairment whenever events or changes in circumstances indicate that the asset’s carrying amount may not be recoverable. The Company conducts its long-lived asset impairment analyses in accordance with ASC 360-10-15, "Impairment or Disposal of Long-Lived Assets," ASC 350-30, "General Intangibles Other than Goodwill" and ASC 985-20, "Costs of Software to be Sold, Leased, or Marketed." ASC 360-10-15 requires the Company to group assets and liabilities at the lowest level for which identifiable cash flows are largely independent of the cash flows of other assets and liabilities and evaluate the asset group against the sum of the undiscounted future cash flows. If the undiscounted cash flows do not indicate the carrying amount of the asset group is recoverable, an impairment charge is measured as the amount by which the carrying amount of the asset group exceeds its fair value based on discounted cash flow analysis or appraisals. ASC 350-30 requires intangible assets acquired in a business combination that are used in research and development activities to be considered indefinite lived until the completion or abandonment of the associated research and development efforts. During the period that those assets are considered indefinite lived, they shall not be amortized but shall be tested for impairment annually and more frequently if events or changes in circumstances indicate that it is more likely than not that the asset is impaired. If the carrying amount of an intangible asset exceeds its fair value, an entity shall recognize an impairment loss in an amount equal to that excess. ASC 985-20 requires the unamortized capitalized costs of a computer software product be compared to the net realizable value of that product. The amount by which the unamortized capitalized costs of a computer software product exceed the net realizable value of that asset shall be written off.

In fiscal 2019, the Company concluded it had a triggering event requiring assessment of impairment for certain of its long-lived assets in conjunction with the plans to dispose of a business within its Global Products segment that met the criteria to be classified as held for sale. Assets and liabilities held for sale are required to be recorded at the lower of carrying value or fair value less any costs to sell. Accordingly, the Company recorded an impairment charge of $235 million within restructuring and impairment costs in the consolidated statements of income in fiscal 2019 to write down the carrying value of the assets held for sale to fair value less any costs to sell. The inputs utilized in the analyses are classified as Level 3 inputs within the fair value hierarchy as defined in ASC 820, "Fair Value Measurement."

In fiscal 2018, the Company concluded it had a triggering event requiring assessment of impairment for certain of its long-lived assets in conjunction with its restructuring actions announced in fiscal 2018. As a result, the Company reviewed the long-lived assets for impairment and recorded $36 million of asset impairment charges within restructuring and impairment costs in the consolidated statements of income. Of the total impairment charges, $31 million related to the Global Products segment and $5 million related to Corporate assets. In addition, the Company recorded $6 million of asset impairments within discontinued operations related to the Power Solutions segment in fiscal 2018. Refer to Note 16, "Significant Restructuring and Impairment Costs," of the notes to consolidated financial statements for additional information. The impairments were measured under a market approach utilizing an appraisal to determine fair values of the impaired assets. This method is consistent with the methods the Company employed in prior periods to value other long-lived assets. The inputs utilized in the analyses are classified as Level 3 inputs within the fair value hierarchy as defined in ASC 820, "Fair Value Measurement."

In fiscal 2017, the Company concluded it had triggering events requiring assessment of impairment for certain of its long-lived assets in conjunction with its restructuring actions announced in fiscal 2017. As a result, the Company reviewed the long-lived assets for impairment and recorded $70 million of asset impairment charges within restructuring and impairment costs on the consolidated statements of income. Of the total impairment charges, $30 million related to the Building Solutions North America segment, $20 million related to the Global Products segment, $19 million related to Corporate assets and $1 million related to the Building Solutions Asia Pacific segment. In addition, the Company recorded $7 million of asset impairments within discontinued operations related to the Power Solutions segment in fiscal 2017. Refer to Note 16, "Significant Restructuring and Impairment Costs," of the notes to consolidated financial statements for additional information. The impairments were measured, depending on the asset, under either an income approach utilizing forecasted discounted cash flows or a market approach utilizing an appraisal to determine fair values of the impaired assets. These methods are consistent with the methods the Company employed in prior periods to value other long-lived assets. The inputs utilized in the analyses are classified as Level 3 inputs within the fair value hierarchy as defined in ASC 820, "Fair Value Measurement."

Investments in partially-owned affiliates ("affiliates") at September 30, 2019 were $853 million, $5 million higher than the prior year.

LIQUIDITY AND CAPITAL RESOURCES

Working Capital

(in millions)	September 30, 2019	September 30, 2018	Change
Current assets	$ 12,393	$ 11,823	
Current liabilities	(9,070)	(11,250)	
	3,323	573	*
Less: Cash	(2,805)	(185)	
Add: Short-term debt	10	1,306	
Add: Current portion of long-term debt	501	1	
Less: Assets held for sale	(98)	(3,015)	
Add: Liabilities held for sale	44	1,791	
Working capital (as defined)	$ 975	$ 471	*
Accounts receivable	$ 5,770	$ 5,622	3%
Inventories	1,814	1,819	—%
Accounts payable	3,582	3,407	5%

* Measure not meaningful

- The Company defines working capital as current assets less current liabilities, excluding cash, short-term debt, the current portion of long-term debt, and the current portions of assets and liabilities held for sale. Management believes that this measure of working capital, which excludes financing-related items and businesses to be divested, provides a more useful measurement of the Company's operating performance.

- The increase in working capital at September 30, 2019 as compared to September 30, 2018, was primarily due to an increase in accounts receivable due to organic sales growth and other current assets, partially offset by an increase in accounts payable due to timing and mix of supplier payments, and other current liabilities.

- The Company's days sales in accounts receivable at September 30, 2019 were 67, a slight decrease from 68 at September 30, 2018. There has been no significant adverse change in the level of overdue receivables or significant changes in revenue recognition methods.

- The Company's inventory turns for the year ended September 30, 2019 were slightly higher than the comparable period ended September 30, 2018 primarily due to changes in inventory production levels.

- Days in accounts payable at September 30, 2019 were 72 days, the same as at the comparable period ended September 30, 2018.

Cash Flows From Continuing Operations

	Year Ended September 30,	
(in millions)	2019	2018
Cash provided by operating activities	$ 1,743	$ 1,520
Cash provided (used) by investing activities	(533)	1,568
Cash used by financing activities	(10,519)	(3,749)

- The increase in cash provided by operating activities was primarily due to lower restructuring payments and higher partially-owned affiliate dividends.

- The increase in cash used by investing activities was primarily due to net cash proceeds received from the Scott Safety business divestiture in the prior year, partially offset by lower capital expenditures.

- The increase in cash used by financing activities was primarily due to higher stock repurchases and higher net repayments of debt.

Capitalization

(in millions)	September 30, 2019	September 30, 2018	Change
Short-term debt	$ 10	$ 1,306	
Current portion of long-term debt	501	1	
Long-term debt	6,708	9,623	
Total debt	$ 7,219	$ 10,930	-34%
Less: cash and cash equivalents	2,805	185	
Total net debt	$ 4,414	$ 10,745	-59%
Shareholders' equity attributable to Johnson Controls ordinary shareholders	19,766	21,164	-7%
Total capitalization	$ 24,180	$ 31,909	-24%
Total net debt as a % of total capitalization	18.3%	33.7%	

- Net debt and net debt as a percentage of total capitalization are non-GAAP financial measures. The Company believes the percentage of total net debt to total capitalization is useful to understanding the Company's financial condition as it provides a review of the extent to which the Company relies on external debt financing for its funding and is a measure of risk to its shareholders.

- In the third quarter of fiscal 2019, the Company began deploying the net cash proceeds from the Power Solution sale, which included a reduction in debt of approximately $3.4 billion and share repurchases. The debt reduction included short-term and long-term debt repayments, including a $1.5 billion debt tender as further described below.

- The Company believes its capital resources and liquidity position at September 30, 2019 are adequate to meet projected needs. The Company believes requirements for working capital, capital expenditures, dividends, stock repurchases, minimum pension contributions, debt maturities and any potential acquisitions in fiscal 2020 will continue to be funded from operations, supplemented by short- and long-term borrowings, if required. The Company currently manages its short-term debt position in the U.S. and euro commercial paper markets and bank loan markets. In the event the Company is unable to issue commercial paper, it would have the ability to draw on its $2.0 billion revolving credit facility. The facility matures in August 2020. There were no draws on the revolving credit facility as of September 30, 2019 and 2018. The Company also selectively makes use of short-term credit lines other than its revolving credit facility. The Company, as of September 30, 2019, could borrow up to $2.8 billion based on committed credit lines. In addition, the Company held cash and cash equivalents of $2.8 billion as of September 30, 2019. As such, the Company believes it has sufficient financial resources to fund operations and meet its obligations for the foreseeable future.

- In June 2019, the Company completed a "modified Dutch auction" tender offer to repurchase approximately $4.0 billion of its ordinary shares at a price of $39.25 per share.

- In May 2019, the Company completed the debt tender offer to purchase up to $1.5 billion in aggregate principal amount of certain of its outstanding notes for $1.6 billion total consideration. The Company recognized a loss on the extinguishment of debt of $60 million, which was recorded within the net financing charges in the consolidated statements of income.

- The Company's debt financial covenant in its revolving credit facility requires a minimum consolidated shareholders' equity attributable to Johnson Controls of at least $3.5 billion at all times. The revolving credit facility also limits the amount of debt secured by liens that may be incurred to a maximum aggregated amount of 10% of consolidated shareholders' equity attributable to Johnson Controls for liens and pledges. For purposes of calculating these covenants, consolidated shareholders' equity attributable to Johnson Controls is calculated without giving effect to (i) the application of Accounting Standards Codification ("ASC") 715-60, "Defined Benefit Plans - Other Postretirement," or (ii) the cumulative foreign currency translation adjustment. As of September 30, 2019, the Company was in compliance with all covenants and other requirements set forth in its credit agreements and the indentures, governing its notes, and expect to remain in compliance for the foreseeable future. None of the Company's debt agreements limit access to stated borrowing levels or require accelerated repayment in the event of a decrease in the Company's credit rating.

- The Company earns a significant amount of its income outside of the parent company. Outside basis differences in these subsidiaries are deemed to be permanently reinvested except in limited circumstances. However, in fiscal 2019, the Company provided income tax expense related to a change in the Company's assertion over the outside basis differences of the Company's investment in certain subsidiaries as a result of the planned divestiture of the Power Solutions business. Also, in fiscal 2018, due to U.S. Tax Reform, the Company provided income tax related to the change in the Company's assertion over the outside basis difference of certain non-U.S. subsidiaries owned directly or indirectly by U.S. subsidiaries. Under U.S. Tax Reform, the U.S. has enacted a tax system that provides an exemption for dividends received by U.S. corporations from 10% or more owned non-U.S. corporations. However, certain non-U.S, U.S. state and withholding taxes may still apply when closing an outside basis difference via distribution or other transactions. In addition, in fiscal 2017, the Company provided income tax expense related to a change in the Company's assertion over the outside basis difference of the Scott Safety business as a result of the pending divestiture as well as the outside basis of certain nonconsolidated subsidiaries. The Company currently does not intend nor foresee a need to repatriate undistributed earnings included in the outside basis differences other than in tax efficient manners. Except as noted, the Company's intent is to reduce basis differences only when it would be tax efficient. The Company expects existing U.S. cash and liquidity to continue to be sufficient to fund the Company's U.S. operating activities and cash commitments for investing and financing activities for at least the next twelve months and thereafter for the foreseeable future. In the U.S., should the Company require more capital than is generated by its operations, the Company could elect to raise capital in the U.S. through debt or equity issuances. The Company has borrowed funds in the U.S. and continues to have the ability to borrow funds in the U.S. at reasonable interest rates. In addition, the Company expects existing non-U.S. cash, cash equivalents, short-term investments and cash flows from operations to continue to be sufficient to fund the Company's non-U.S. operating activities and cash commitments for investing activities, such as material capital expenditures, for at least the next twelve months and thereafter for the foreseeable future. Should the Company require more capital at the Luxembourg and Ireland holding and financing entities, other than amounts that can be provided in tax efficient methods, the Company could also elect to raise capital through debt or equity issuances. These alternatives could result in increased interest expense or other dilution of the Company's earnings.

- To better align its resources with its growth strategies and reduce the cost structure of its global operations in certain underlying markets, the Company committed to a significant restructuring plan in fiscal 2018 and recorded $255 million of restructuring and impairment costs for continuing operations in the consolidated statements of income. The restructuring action related to cost reduction initiatives in the Company's Building Technologies & Solutions business and at Corporate. The costs consist primarily of workforce reductions, plant closures and asset impairments. The Company currently estimates that upon completion of the restructuring action, the fiscal 2018 restructuring plan will reduce annual operating costs for continuing operations by approximately $300 million, which is primarily the result of lower cost of sales and SG&A due to reduced employee-related costs, depreciation and amortization expense. The Company expects the annual benefit of these actions will be substantially realized in 2020. For fiscal 2019, the savings, net of execution costs, were approximately 70% of the expected annual operating cost reduction. The restructuring action is expected to be substantially complete in 2020. The restructuring plan reserve balance of $102 million at September 30, 2019 is expected to be paid in cash.

- To better align its resources with its growth strategies and reduce the cost structure of its global operations in certain underlying markets, the Company committed to a significant restructuring plan in fiscal 2017 and recorded $347 million of restructuring and impairment costs for continuing operations in the consolidated statements of income. The restructuring action related to cost reduction initiatives in the Company's Building Technologies & Solutions business and at Corporate. The costs consist primarily of workforce reductions, plant closures and asset impairments. The Company currently estimates that upon completion of the restructuring action, the fiscal 2017 restructuring plan will reduce annual operating costs from continuing operations for continuing operations by approximately $260 million, which is primarily the result of lower cost of sales and SG&A expenses due to reduced employee-related costs, depreciation and amortization expense. The Company substantially realized the annual benefit of these actions in fiscal 2019. The restructuring actions are expected to be substantially complete in fiscal 2020. The restructuring plan reserve balance of $61 million at September 30, 2019 is expected to be paid in cash.

- To better align its resources with its growth strategies and reduce the cost structure of its global operations to address the softness in certain underlying markets, the Company committed to a significant restructuring plan in fiscal 2016 and recorded $222 million of restructuring and impairment costs for continuing operations in the consolidated statements of income. The restructuring action related to cost reduction initiatives in the Company's Building Technologies & Solutions business and at Corporate. The costs consist primarily of workforce reductions, plant closures, asset impairments and change-in-control payments. The restructuring action has reduced annual operating costs for continuing operations by approximately $127 million, which is primarily the result of lower cost of sales and SG&A due to reduced employee-related costs, depreciation and amortization expense. The restructuring actions are substantially complete, and final payments are expected to be made in fiscal 2020. The restructuring plan reserve balance of $32 million at September 30, 2019 is expected to be paid in cash.

- Refer to Note 9, "Debt and Financing Arrangements," of the notes to consolidated financial statements for additional information on items impacting capitalization.

A summary of the Company’s significant contractual obligations for continuing operations as of September 30, 2019 is as follows (in millions):

	Total	2020	2021-2022	2023-2024	2025 and Beyond
Contractual Obligations					
Long-term debt*	$ 7,240	$ 501	$ 1,500	$ 1,486	$ 3,753
Interest on long-term debt*	3,834	220	384	358	2,872
Operating leases	1,193	352	487	182	172
Purchase obligations	1,072	907	147	18	—
Pension and postretirement contributions	415	54	69	76	216
Total contractual cash obligations	$ 13,754	$ 2,034	$ 2,587	$ 2,120	$ 7,013

* Refer to Note 9, "Debt and Financing Arrangements," of the notes to consolidated financial statements for information related to the Company's long-term debt.

CRITICAL ACCOUNTING ESTIMATES AND POLICIES

The Company prepares its consolidated financial statements in conformity with accounting principles generally accepted in the United States of America ("U.S. GAAP"). This requires management to make estimates and assumptions that affect reported amounts and related disclosures. Actual results could differ from those estimates. The following policies are considered by management to be the most critical in understanding the judgments that are involved in the preparation of the Company’s consolidated financial statements and the uncertainties that could impact the Company’s results of operations, financial position and cash flows.

Revenue Recognition

The Company recognizes revenue from certain long-term contracts to design, manufacture and install building products and systems as well as unscheduled repair or replacement services on an over time basis, with progress towards completion measured using a cost-to-cost input method based on the relationship between actual costs incurred and total estimated costs at completion. The cost-to-cost input method is used as it best depicts the transfer of control to the customer that occurs as the Company incurs costs. Changes to the original estimates may be required during the life of the contract and such estimates are reviewed monthly. If contract modifications result in additional goods or services that are distinct from those transferred before the modification, they are accounted for prospectively as if the Company entered into a new contract. If the goods or services in the modification are not distinct from those in the original contract, sales and gross profit are adjusted using the cumulative catch-up method for revisions in estimated total contract costs and contract values. Estimated losses are recorded when identified. The Company does not adjust the promised amount of consideration for the effects of a significant financing component as at contract inception the Company expects to receive the payment within twelve months of transfer of goods or services.

The Company enters into extended warranties and long-term service and maintenance agreements with certain customers. For these arrangements, revenue is recognized over time on a straight-line basis over the respective contract term.

The Company also sells certain HVAC and refrigeration products and services in bundled arrangements with multiple performance obligations, such as equipment, commissioning, service labor and extended warranties. Approximately four to twelve months separate the timing of the first deliverable until the last piece of equipment is delivered, and there may be extended warranty arrangements with duration of one to five years commencing upon the end of the standard warranty period. In addition, the Company sells security monitoring systems that may have multiple performance obligations, including equipment, installation, monitoring services and maintenance agreements. Revenues associated with sale of equipment and related installations are recognized over time on a cost-to-cost input method, while the revenue for monitoring and maintenance services are recognized over time as services are rendered. The transaction price is allocated to each performance obligation based on the relative selling price method. In order to estimate relative selling price, market data and transfer price studies are utilized. If the standalone selling price is not directly observable, the Company estimates the standalone selling price using an adjusted market assessment approach or expected cost plus margin approach. For transactions in which the Company retains ownership of the subscriber system asset, fees for monitoring and maintenance services are recognized over time on a straight-line basis over the contract term. Non-refundable fees received in connection with the initiation of a monitoring contract, along with associated direct and incremental selling costs, are deferred and amortized over the estimated life of the contract.

In all other cases, the Company recognizes revenue at the point in time when control over the goods or services transfers to the customer.

The Company considers the contractual consideration payable by the customer and assesses variable consideration that may affect the total transaction price, including discounts, rebates, refunds, credits or other similar sources of variable consideration, when determining the transaction price of each contract. The Company includes variable consideration in the estimated transaction price when it is probable that significant reversal of revenue recognized would not occur when the uncertainty associated with variable consideration is subsequently resolved. These estimates are based on the amount of consideration that the Company expects to be entitled to.

Shipping and handling costs billed to customers are included in sales and the related costs are included in cost of sales when control transfers to the customer. The Company presents amounts collected from customers for sales and other taxes net of the related amounts remitted. Refer to Note 4, "Revenue Recognition," of the notes to consolidated financial statements for disclosure of the Company's revenue recognition activity.

Goodwill and Indefinite-Lived Intangible Assets

Goodwill reflects the cost of an acquisition in excess of the fair values assigned to identifiable net assets acquired. The Company reviews goodwill for impairment during the fourth fiscal quarter or more frequently if events or changes in circumstances indicate the asset might be impaired. The Company performs impairment reviews for its reporting units, which have been determined to be the Company’s reportable segments or one level below the reportable segments in certain instances, using a fair value method based on management’s judgments and assumptions or third party valuations. The fair value of a reporting unit refers to the price that would be received to sell the unit as a whole in an orderly transaction between market participants at the measurement date. In estimating the fair value, the Company uses multiples of earnings based on the average of published multiples of earnings of comparable entities with similar operations and economic characteristics and applies to the Company's average of historical and future financial results. In certain instances, the Company uses discounted cash flow analyses or estimated sales price to further support the fair value estimates. The inputs utilized in the analyses are classified as Level 3 inputs within the fair value hierarchy as defined in ASC 820, "Fair Value Measurement." The estimated fair value is then compared with the carrying amount of the reporting unit, including recorded goodwill. The Company is subject to financial statement risk to the extent that the carrying amount exceeds the estimated fair value. Refer to Note 7, "Goodwill and Other Intangible Assets," of the notes to consolidated financial statements for information regarding the goodwill impairment testing performed in fiscal years 2019, 2018 and 2017.

Indefinite-lived intangible assets are also subject to at least annual impairment testing. Indefinite-lived intangible assets consist of trademarks and tradenames and are tested for impairment using a relief-from-royalty method. A considerable amount of management judgment and assumptions are required in performing the impairment tests.

Impairment of Long-Lived Assets

The Company reviews long-lived assets, including tangible assets and other intangible assets with definitive lives, for impairment whenever events or changes in circumstances indicate that the asset’s carrying amount may not be recoverable. The Company conducts its long-lived asset impairment analyses in accordance with ASC 360-10-15, "Impairment or Disposal of Long-Lived Assets," ASC 350-30, "General Intangibles Other than Goodwill" and ASC 985-20, "Costs of Software to be Sold, Leased, or Marketed." ASC 360-10-15 requires the Company to group assets and liabilities at the lowest level for which identifiable cash flows are largely independent of the cash flows of other assets and liabilities and evaluate the asset group against the sum of the undiscounted future cash flows. If the undiscounted cash flows do not indicate the carrying amount of the asset group is recoverable, an impairment charge is measured as the amount by which the carrying amount of the asset group exceeds its fair value based on discounted cash flow analysis or appraisals. ASC 350-30 requires intangible assets acquired in a business combination that are used in research and development activities be considered indefinite lived until the completion or abandonment of the associated research and development efforts. During the period that those assets are considered indefinite lived, they shall not be amortized but shall be tested for impairment annually and more frequently if events or changes in circumstances indicate that it is more likely than not that the asset is impaired. If the carrying amount of an intangible asset exceeds its fair value, an entity shall recognize an impairment loss in an amount equal to that excess. ASC 985-20 requires the unamortized capitalized costs of a computer software product be compared to the net realizable value of that product. The amount by which the unamortized capitalized costs of a computer software product exceed the net realizable value of that asset shall be written off. Refer to Note 17, "Impairment of Long-Lived Assets," of the notes to consolidated financial statements for information regarding the impairment testing performed in fiscal years 2019, 2018 and 2017.

Employee Benefit Plans

The Company provides a range of benefits to its employees and retired employees, including pensions and postretirement benefits. Plan assets and obligations are measured annually, or more frequently if there is a significant remeasurement event, based on the Company’s measurement date utilizing various actuarial assumptions such as discount rates, assumed rates of return, compensation increases, turnover rates and health care cost trend rates as of that date. The Company reviews its actuarial assumptions on an annual basis and makes modifications to the assumptions based on current rates and trends when appropriate.

The Company utilizes a mark-to-market approach for recognizing pension and postretirement benefit expenses, including measuring the market related value of plan assets at fair value and recognizing actuarial gains and losses in the fourth quarter of each fiscal year or at the date of a remeasurement event. Refer to Note 15, "Retirement Plans," of the notes to consolidated financial statements for disclosure of the Company's pension and postretirement benefit plans.

U.S. GAAP requires that companies recognize in the statement of financial position a liability for defined benefit pension and postretirement plans that are underfunded or unfunded, or an asset for defined benefit pension and postretirement plans that are overfunded. U.S. GAAP also requires that companies measure the benefit obligations and fair value of plan assets that determine a benefit plan’s funded status as of the date of the employer’s fiscal year end.

The Company considers the expected benefit payments on a plan-by-plan basis when setting assumed discount rates. As a result, the Company uses different discount rates for each plan depending on the plan jurisdiction, the demographics of participants and the expected timing of benefit payments. For the U.S. pension and postretirement plans, the Company uses a discount rate provided by an independent third party calculated based on an appropriate mix of high quality bonds. For the non-U.S. pension and postretirement plans, the Company consistently uses the relevant country specific benchmark indices for determining the various discount rates. The Company’s weighted average discount rate on U.S. pension plans was 2.95% and 4.10% at September 30, 2019 and 2018, respectively. The Company’s weighted average discount rate on postretirement plans was 2.90% and 3.80% at September 30, 2019 and 2018, respectively. The Company’s weighted average discount rate on non-U.S. pension plans was 1.50% and 2.45% at September 30, 2019 and 2018, respectively.

In estimating the expected return on plan assets, the Company considers the historical returns on plan assets, adjusted for forward-looking considerations, inflation assumptions and the impact of the active management of the plans’ invested assets. Reflecting the relatively long-term nature of the plans’ obligations, approximately 28% of the plans’ assets are invested in equity securities and 59% in fixed income securities, with the remainder primarily invested in alternative investments. For the years ending September 30, 2019 and 2018, the Company’s expected long-term return on U.S. pension plan assets used to determine net periodic benefit cost was 7.10% and 7.50%, respectively. The actual rate of return on U.S. pension plans was above 7.10% in fiscal year 2019 and below 7.50% in fiscal year 2018. For the years ending September 30, 2019 and 2018, the Company’s weighted average expected long-term return on non-U.S. pension plan assets was 5.20% and 5.35%, respectively. The actual rate of return on non-U.S. pension plans was above 5.20% in fiscal year 2019 and below 5.35% in fiscal year 2018. For the years ending September 30, 2019 and 2018, the Company’s weighted average expected long-term return on postretirement plan assets was 5.65%. The actual rate of return on postretirement plan assets was below 5.65% in fiscal year 2019 and 2018.

Beginning in fiscal 2020, the Company believes the long-term rate of return will approximate 6.90%, 5.20% and 5.70% for U.S. pension, non-U.S. pension and postretirement plans, respectively. Any differences between actual investment results and the expected long-term asset returns will be reflected in net periodic benefit costs in the fourth quarter of each fiscal year or at the date of a significant remeasurement event. If the Company’s actual returns on plan assets are less than the Company’s expectations, additional contributions may be required.

In fiscal 2019, total employer contributions for continuing operations to the defined benefit pension plans were $50 million, none of which were voluntary contributions made by the Company. The Company expects to contribute approximately $50 million in cash to its defined benefit pension plans in fiscal 2020. In fiscal 2019, total employer contributions for continuing operations to the postretirement plans were $3 million. The Company expects to contribute approximately $4 million in cash to its postretirement plans in fiscal 2020.

Based on information provided by its independent actuaries and other relevant sources, the Company believes that the assumptions used are reasonable; however, changes in these assumptions could impact the Company's financial position, results of operations or cash flows.

Loss Contingencies

Accruals are recorded for various contingencies including legal proceedings, environmental matters, self-insurance and other claims that arise in the normal course of business. The accruals are based on judgment, the probability of losses and, where applicable, the consideration of opinions of internal and/or external legal counsel and actuarially determined estimates. Additionally, the Company records receivables from third party insurers when recovery has been determined to be probable.

The Company is subject to laws and regulations relating to protecting the environment. The Company provides for expenses associated with environmental remediation obligations when such amounts are probable and can be reasonably estimated. Refer to Note 22, "Commitments and Contingencies," of the notes to consolidated financial statements.

The Company records liabilities for its workers' compensation, product, general and auto liabilities. The determination of these liabilities and related expenses is dependent on claims experience. For most of these liabilities, claims incurred but not yet reported are estimated by utilizing actuarial valuations based upon historical claims experience. The Company records receivables from third party insurers when recovery has been determined to be probable. The Company maintains captive insurance companies to manage its insurable liabilities.

Asbestos-Related Contingencies and Insurance Receivables

The Company and certain of its subsidiaries along with numerous other companies are named as defendants in personal injury lawsuits based on alleged exposure to asbestos-containing materials. The Company's estimate of the liability and corresponding insurance recovery for pending and future claims and defense costs is based on the Company's historical claim experience, and estimates of the number and resolution cost of potential future claims that may be filed and is discounted to present value from 2068 (which is the Company's reasonable best estimate of the actuarially determined time period through which asbestos-related claims will be filed against Company affiliates). Asbestos related defense costs are included in the asbestos liability. The Company's legal strategy for resolving claims also impacts these estimates. The Company considers various trends and developments in evaluating the period of time (the look-back period) over which historical claim and settlement experience is used to estimate and value claims reasonably projected to be made through 2068. Annually, the Company assesses the sufficiency of its estimated liability for pending and future claims and defense costs by evaluating actual experience regarding claims filed, settled and dismissed, and amounts paid in settlements. In addition to claims and settlement experience, the Company considers additional quantitative and qualitative factors such as changes in legislation, the legal environment, and the Company's defense strategy. The Company also evaluates the recoverability of its insurance receivable on an annual basis. The Company evaluates all of these factors and determines whether a change in the estimate of its liability for pending and future claims and defense costs or insurance receivable is warranted.

In connection with the recognition of liabilities for asbestos-related matters, the Company records asbestos-related insurance recoveries that are probable. The Company's estimate of asbestos-related insurance recoveries represents estimated amounts due to the Company for previously paid and settled claims and the probable reimbursements relating to its estimated liability for pending and future claims discounted to present value. In determining the amount of insurance recoverable, the Company considers available insurance, allocation methodologies, solvency and creditworthiness of the insurers. Refer to Note 22, "Commitments and Contingencies," of the notes to consolidated financial statements for a discussion on management's judgments applied in the recognition and measurement of asbestos-related assets and liabilities.

Product Warranties

The Company offers warranties to its customers depending upon the specific product and terms of the customer purchase agreement. A typical warranty program requires that the Company replace defective products within a specified time period from the date of sale. The Company records an estimate of future warranty-related costs based on actual historical return rates and other known factors. Based on analysis of return rates and other factors, the Company's warranty provisions are adjusted as necessary. At September 30, 2019, the Company had recorded $285 million of warranty reserves for continuing operations, including extended warranties for which deferred revenue is recorded. The Company monitors its warranty activity and adjusts its reserve estimates when it is probable that future warranty costs will be different than those estimates. Refer to Note 21, "Guarantees," of the notes to consolidated financial statements for disclosure of the Company's product warranty liabilities.

Income Taxes

The Company accounts for income taxes in accordance with ASC 740, "Income Taxes." Deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between financial statement carrying amounts of existing assets and liabilities and their respective tax bases and operating loss and other loss carryforwards. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The Company records a valuation allowance that primarily represents non-U.S. operating and other loss carryforwards for which realization is uncertain. Management judgment is required in determining the Company's provision for income taxes, deferred tax assets and liabilities, and the valuation allowance recorded against the Company's net deferred tax assets. In calculating the provision for income taxes on an interim basis, the Company uses an estimate of the annual effective tax rate based upon the facts and circumstances known at each interim period. On a quarterly basis, the actual effective tax rate is adjusted as appropriate based upon the actual results as compared to those forecasted at the beginning of the fiscal year.

The Company reviews the realizability of its deferred tax asset valuation allowances on a quarterly basis, or whenever events or changes in circumstances indicate that a review is required. In determining the requirement for a valuation allowance, the historical and projected financial results of the legal entity or consolidated group recording the net deferred tax asset are considered, along with any other positive or negative evidence. Since future financial results may differ from previous estimates, periodic adjustments to the Company's valuation allowances may be necessary. At September 30, 2019, the Company had a valuation allowance of $5.1 billion for continuing operations, of which $4.5 billion relates to net operating loss carryforwards primarily in Australia, Brazil, France, Germany, Ireland, Luxembourg, Spain, Switzerland, United Kingdom, and the U.S. for which sustainable taxable income has not been demonstrated; and $600 million for other deferred tax assets.

The Company's federal income tax returns and certain non-U.S. income tax returns for various fiscal years remain under various stages of audit by the IRS and respective non-U.S. tax authorities. Although the outcome of tax audits is always uncertain, management believes that it has appropriate support for the positions taken on its tax returns and that its annual tax provisions included amounts sufficient to pay assessments, if any, which may be proposed by the taxing authorities. At September 30, 2019, the Company had recorded a liability of $2.5 billion for its best estimate of the probable loss on certain of its tax positions, the majority of which is included in other noncurrent liabilities in the consolidated statements of financial position. Nonetheless, the amounts ultimately paid, if any, upon resolution of the issues raised by the taxing authorities may differ materially from the amounts accrued for each year.

The Company does not generally provide additional U.S. or non-U.S. income taxes on outside basis differences of consolidated subsidiaries included in shareholders' equity attributable to Johnson Controls International plc, except in limited circumstances including anticipated taxation on planned divestitures. The reduction of the outside basis differences via the sale or liquidation of these subsidiaries and/or distributions could create taxable income. The Company's intent is to reduce the outside basis differences only when it would be tax efficient. Refer to "Capitalization" within the "Liquidity and Capital Resources" section for discussion of U.S. and non-U.S. cash projections.

Refer to Note 18, "Income Taxes," of the notes to consolidated financial statements for the Company's income tax disclosures.

NEW ACCOUNTING PRONOUNCEMENTS

Refer to the "New Accounting Pronouncements" section within Note 1, "Summary of Significant Accounting Policies," of the notes to consolidated financial statements.

RISK MANAGEMENT

The Company selectively uses derivative instruments to reduce market risk associated with changes in foreign currency, commodities and stock-based compensation. All hedging transactions are authorized and executed pursuant to clearly defined policies and procedures, which strictly prohibit the use of financial instruments for speculative purposes. At the inception of the hedge, the Company assesses the effectiveness of the hedge instrument and designates the hedge instrument as either (1) a hedge of a recognized asset or liability or of a recognized firm commitment (a fair value hedge), (2) a hedge of a forecasted transaction or of the variability of cash flows to be received or paid related to an unrecognized asset or liability (a cash flow hedge) or (3) a hedge of a net investment in a non-U.S. operation (a net investment hedge). The Company performs hedge effectiveness testing on an ongoing basis depending on the type of hedging instrument used. All other derivatives not designated as hedging instruments under ASC 815, "Derivatives and Hedging," are revalued in the consolidated statements of income.

For all foreign currency derivative instruments designated as cash flow hedges, retrospective effectiveness is tested on a monthly basis using a cumulative dollar offset test. The fair value of the hedged exposures and the fair value of the hedge instruments are revalued, and the ratio of the cumulative sum of the periodic changes in the value of the hedge instruments to the cumulative sum of the periodic changes in the value of the hedge is calculated. The hedge is deemed as highly effective if the ratio is between 80% and 125%. For commodity derivative contracts designated as cash flow hedges, effectiveness is tested using a regression calculation. Ineffectiveness is minimal as the Company aligns most of the critical terms of its derivatives with the supply contracts.

For net investment hedges, the Company assesses its net investment positions in the non-U.S. operations and compares it with the outstanding net investment hedges on a quarterly basis. The hedge is deemed effective if the aggregate outstanding principal of the hedge instruments designated as the net investment hedge in a non-U.S. operation does not exceed the Company's net investment positions in the respective non-U.S. operation.

Equity swaps and any other derivative instruments not designated as hedging instruments under ASC 815 require no assessment of effectiveness.

A discussion of the Company's accounting policies for derivative financial instruments is included in Note 1, "Summary of Significant Accounting Policies," of the notes to consolidated financial statements, and further disclosure relating to derivatives and hedging activities is included in Note 10, "Derivative Instruments and Hedging Activities," and Note 11, "Fair Value Measurements," of the notes to consolidated financial statements.

Foreign Exchange

The Company has manufacturing, sales and distribution facilities around the world and thus makes investments and enters into transactions denominated in various foreign currencies. In order to maintain strict control and achieve the benefits of the Company's global diversification, foreign exchange exposures for each currency are netted internally so that only its net foreign exchange exposures are, as appropriate, hedged with financial instruments.

The Company hedges 70% to 90% of the nominal amount of each of its known foreign exchange transactional exposures. The Company primarily enters into foreign currency exchange contracts to reduce the earnings and cash flow impact of the variation of non-functional currency denominated receivables and payables. Gains and losses resulting from hedging instruments offset the foreign exchange gains or losses on the underlying assets and liabilities being hedged. The maturities of the forward exchange contracts generally coincide with the settlement dates of the related transactions. Realized and unrealized gains and losses on these contracts are recognized in the same period as gains and losses on the hedged items. The Company also selectively hedges anticipated transactions that are subject to foreign exchange exposure, primarily with foreign currency exchange contracts, which are designated as cash flow hedges in accordance with ASC 815.

The Company has entered into foreign currency denominated debt obligations to selectively hedge portions of its net investment in non-U.S. subsidiaries. The currency effects of debt obligations are reflected in the accumulated other comprehensive income ("AOCI") account within shareholders' equity attributable to Johnson Controls ordinary shareholders where they offset gains and losses recorded on the Company's net investments globally.

At September 30, 2019 and 2018, the Company estimates that an unfavorable 10% change in the exchange rates would have decreased net unrealized gains by approximately $358 million and $212 million, respectively.

Interest Rates

Substantially all of the Company's outstanding debt has fixed interest rates. A 10% increase in the average cost of the Company's variable rate debt would have had an immaterial impact on pre-tax interest expense for the year ended September 30, 2019 and an unfavorable impact of approximately $5 million for the year ended September 30, 2018.

Commodities

The Company uses commodity hedge contracts in the financial derivatives market in cases where commodity price risk cannot be naturally offset or hedged through supply base fixed price contracts. Commodity risks are systematically managed pursuant to policy guidelines. As a cash flow hedge, gains and losses resulting from the hedging instruments offset the gains or losses on purchases of the underlying commodities that will be used in the business. The maturities of the commodity hedge contracts coincide with the expected purchase of the commodities.

ENVIRONMENTAL, HEALTH AND SAFETY AND OTHER MATTERS

The Company's global operations are governed by environmental laws and worker safety laws. Under various circumstances, these laws impose civil and criminal penalties and fines, as well as injunctive and remedial relief, for noncompliance and require remediation at sites where Company-related substances have been released into the environment.

The Company has expended substantial resources globally, both financial and managerial, to comply with applicable environmental laws and worker safety laws and to protect the environment and workers. The Company believes it is in substantial compliance with such laws and maintains procedures designed to foster and ensure compliance. However, the Company has been, and in the future may become, the subject of formal or informal enforcement actions or proceedings regarding noncompliance with such laws or the remediation of Company-related substances released into the environment. Such matters typically are resolved with regulatory authorities through commitments to compliance, abatement or remediation programs and in some cases payment of penalties. Historically, neither such commitments nor penalties imposed on the Company have been material.

Refer to Note 22, "Commitments and Contingencies," of the notes to consolidated financial statements for additional information.

QUARTERLY FINANCIAL DATA

(in millions, except per share data) (quarterly amounts unaudited)	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Full Year
2019					
Net sales	$ 5,464	$ 5,779	$ 6,451	$ 6,274	$ 23,968
Gross profit	1,725	1,844	2,144	1,980	7,693
Net income (1)	399	558	4,276	654	5,887
Net income attributable to Johnson Controls	355	515	4,192	612	5,674
Earnings per share (2)					
Basic	0.39	0.57	4.81	0.78	6.52
Diluted	0.38	0.57	4.79	0.77	6.49
2018					
Net sales	$ 5,305	$ 5,630	$ 6,282	$ 6,183	$ 23,400
Gross profit	1,698	1,824	2,088	2,057	7,667
Net income (3)	271	483	804	825	2,383
Net income attributable to Johnson Controls	230	438	723	771	2,162
Earnings per share (2)					
Basic	0.25	0.47	0.78	0.83	2.34
Diluted	0.25	0.47	0.78	0.83	2.32

(1) The fiscal 2019 first quarter net income includes $50 million of transaction and integration costs and $21 million of mark-to-market losses. The fiscal 2019 second quarter net income includes $70 million of transaction and integration costs and $20 million of mark-to-market gains. The fiscal 2019 third quarter net income includes a $5.2 billion gain on sale of the Power Solutions business, net of transaction and other costs, $235 million of significant restructuring and impairment costs, $226 million of tax indemnification reserve release, $140 million of environmental charge, $86 million of transaction and integration costs, $60 million of loss on debt extinguishment and $9 million of mark-to-market gains. The fiscal 2019 fourth quarter net income includes $626 million of net mark-to-market losses and $111 million of transaction and integration costs. The preceding amounts are stated on a pre-tax and pre-noncontrolling interest impact basis and include both continuing and discontinued operations activity.

(2) Due to the use of the weighted-average shares outstanding for each quarter for computing earnings per share, the sum of the quarterly per share amounts may not equal the per share amount for the year.

(3) The fiscal 2018 first quarter net income includes a $114 million gain on sale of Scott Safety, $158 million of significant restructuring and impairment costs, and $50 million of transaction and integration costs. The fiscal 2018 second quarter net income includes $64 million of transaction and integration costs. The fiscal 2018 third quarter net income includes $51 million of transaction and integration costs. The fiscal 2018 fourth quarter net income includes $10 million of net mark-to-market gains on pension and postretirement plans, $105 million of significant restructuring and impairment costs, and $69 million of transaction and integration costs. The preceding amounts are stated on a pre-tax and pre-noncontrolling interest impact basis and include both continuing and discontinued operations activity.

ITEM 7A QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

See "Risk Management" included in Item 7 - Management’s Discussion and Analysis of Financial Condition and Results of Operations.

ITEM 8 FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

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Report of Independent Registered Public Accounting Firm

To the Board of Directors and Shareholders of Johnson Controls International plc

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated statements of financial position of Johnson Controls International plc and its subsidiaries (the "Company") as of September 30, 2019 and 2018, and the related consolidated statements of income, comprehensive income (loss), shareholders' equity attributable to Johnson Controls ordinary shareholders, and cash flows for each of the three years in the period ended September 30, 2019, including the related notes and financial statement schedule listed in the accompanying index (collectively referred to as the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of September 30, 2019, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of September 30, 2019 and 2018, and the results of its operations and its cash flows for each of the three years in the period ended September 30, 2019 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of September 30, 2019, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the COSO.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in Management's Report on Internal Control over Financial Reporting appearing under Item 9A. Our responsibility is to express opinions on the Company's consolidated financial statements and on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that (i) relate to accounts or disclosures that are material to the consolidated financial statements and (ii) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Goodwill Impairment Assessment

As described in Notes 1 and 7 to the consolidated financial statements, the Company's consolidated goodwill balance was $18,178 million as of September 30, 2019. Management reviews goodwill for impairment as of July 31 of each fiscal year, or more frequently if events or changes in circumstances indicate the asset might be impaired. The estimated fair value of each reporting unit, using a fair value method based on management's judgments and assumptions, is compared with the carrying amount of each reporting unit, including recorded goodwill. The fair value of a reporting unit refers to the price that would be received to sell the unit as a whole in an orderly transaction between market participants at the measurement date. In estimating the fair value of each reporting unit, management uses multiples of earnings based on the average of published multiples of earnings of comparable entities with similar operations and economic characteristics, applied to the Company's average of historical and future financial results.

The principal considerations for our determination that performing procedures relating to the goodwill impairment assessment is a critical audit matter are there was significant judgment by management when developing the fair value of each reporting unit. This, in turn, led to a high degree of auditor judgment, subjectivity, and effort in performing procedures to evaluate management's significant assumptions, including multiples of earnings of comparable entities with similar operations and economic characteristics. In addition, the audit effort involved the use of professionals with specialized skill and knowledge to assist in performing these procedures and evaluating the audit evidence obtained.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. The procedures included testing the effectiveness of controls relating to management's goodwill impairment assessment, including controls over the fair value of the Company's reporting units. These procedures also included, among others, (i) testing management's process for developing the fair value estimates, (ii) evaluating the appropriateness of the multiples of earnings model, (iii) testing the completeness, accuracy, and relevance of underlying data used in the model, and evaluating the significant assumptions used by management, including the multiples of earnings of comparable entities with similar operations and economic characteristics. Evaluating management's assumptions related to multiples of earnings involved evaluating whether the assumptions used by management were reasonable considering (i) the consistency with external market and industry data, and (ii) whether these assumptions were consistent with evidence obtained in other areas of the audit. Professionals with specialized skill and knowledge were used to assist in the evaluation of the Company's multiples of earnings model and certain significant assumptions, including multiples of earnings of comparable entities with similar operations and economic characteristics.

Uncertain Tax Positions

As described in Note 18 to the consolidated financial statements, the Company recorded uncertain tax position liabilities totaling $2,451 million, primarily as a non-current liability, as of September 30, 2019. The Company is subject to income taxes in the U.S. and in numerous foreign jurisdictions. Judgment is required by management in determining the Company's worldwide provision for income taxes and recording the related income tax assets and liabilities. As described by management, the Company has recorded a liability for its best estimate of the probable loss on certain of the tax positions. The Company's income tax filings are regularly under audit by tax authorities. The amounts ultimately paid, if any, upon resolution of the issues raised by the taxing authorities may differ materially from the amounts accrued for each year.

The principal considerations for our determination that performing procedures relating to uncertain tax positions is a critical audit matter are there was significant judgment by management in identifying and recording the estimated probable loss for each uncertain tax position. This, in turn, led to a high degree of auditor judgment, subjectivity, and effort in performing procedures to evaluate the timely identification and accurate measurement of uncertain tax positions. Also, the evaluation of audit evidence available to support the tax liabilities for uncertain tax positions is complex and required significant auditor judgment as the nature of the evidence is often highly subjective. In addition, the audit effort involved the use of professionals with specialized skill and knowledge to assist in performing these procedures and evaluating the audit evidence obtained.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to management's assessment of uncertain tax positions, including controls over the identification and estimate of probable loss for each uncertain tax position. These procedures also included, among others, (i) testing the information used in the calculation of the estimate of probable loss for uncertain tax positions, (ii) testing the calculation of the liability for uncertain tax positions by jurisdiction, (iii) testing the completeness of management's assessment of the identification of uncertain tax positions, and (iv) evaluating the status and results of income tax audits with the relevant tax authorities, as applicable. Professionals with specialized skill and knowledge were used to assist in the evaluation of the completeness and measurement of the Company's uncertain tax positions, including evaluating the reasonableness of management's assessment of whether tax positions are more-likely-than-not of being sustained and the amount of potential benefit to be realized, the application of relevant tax laws, and estimated interest and penalties.

/s/ PricewaterhouseCoopers LLP
Milwaukee, Wisconsin
November 21, 2019

We have served as the Company's auditor since 1957.

Johnson Controls International plc
Consolidated Statements of Income

(in millions, except per share data)	**Year Ended September 30, 2019**	**2018**	**2017**
Net sales			
Products and systems	$ 17,711	$ 17,332	$ 16,762
Services	6,257	6,068	6,073
	23,968	23,400	22,835
Cost of sales			
Products and systems	12,577	12,315	11,692
Services	3,698	3,418	3,613
	16,275	15,733	15,305
Gross profit	7,693	7,667	7,530
Selling, general and administrative expenses	(6,244)	(5,642)	(5,723)
Restructuring and impairment costs	(235)	(255)	(347)
Net financing charges	(350)	(401)	(466)
Equity income	192	177	157
Income from continuing operations before income taxes	1,056	1,546	1,151
Income tax provision (benefit)	(233)	197	322
Income from continuing operations	1,289	1,349	829
Income from discontinued operations, net of tax (Note 3)	4,598	1,034	990
Net income	5,887	2,383	1,819
Income from continuing operations attributable to noncontrolling interests	189	174	157
Income from discontinued operations attributable to noncontrolling interests	24	47	51
Net income attributable to Johnson Controls	$ 5,674	$ 2,162	$ 1,611
Amounts attributable to Johnson Controls ordinary shareholders:			
Income from continuing operations	$ 1,100	$ 1,175	$ 672
Income from discontinued operations	4,574	987	939
Net income	$ 5,674	$ 2,162	$ 1,611
Basic earnings per share attributable to Johnson Controls			
Continuing operations	$ 1.26	$ 1.27	$ 0.72
Discontinued operations	5.26	1.07	1.00
Net income	$ 6.52	$ 2.34	$ 1.72
Diluted earnings per share attributable to Johnson Controls			
Continuing operations	$ 1.26	$ 1.26	$ 0.71
Discontinued operations	5.23	1.06	0.99
Net income *	$ 6.49	$ 2.32	$ 1.71

* Certain items do not sum due to rounding.

The accompanying notes are an integral part of the consolidated financial statements.

Johnson Controls International plc
Consolidated Statements of Comprehensive Income (Loss)

	Year Ended September 30,		
(in millions)	**2019**	**2018**	**2017**
Net income	$ 5,887	$ 2,383	$ 1,819
Other comprehensive income (loss), net of tax:			
Foreign currency translation adjustments	(342)	(483)	103
Realized and unrealized gains (losses) on derivatives	6	(29)	(14)
Realized and unrealized gains on marketable securities	—	4	5
Pension and postretirement plans	(6)	—	—
Other comprehensive income (loss)	(342)	(508)	94
Total comprehensive income	5,545	1,875	1,913
Comprehensive income attributable to noncontrolling interests	195	186	203
Comprehensive income attributable to Johnson Controls	$ 5,350	$ 1,689	$ 1,710

The accompanying notes are an integral part of the consolidated financial statements.

Johnson Controls International plc
Consolidated Statements of Financial Position

(in millions, except par value and share data)	September 30, 2019	September 30, 2018
Assets		
Cash and cash equivalents	$ 2,805	$ 185
Accounts receivable, less allowance for doubtful accounts of $173 and $169, respectively	5,770	5,622
Inventories	1,814	1,819
Assets held for sale	98	3,015
Other current assets	1,906	1,182
Current assets	12,393	11,823
Property, plant and equipment - net	3,348	3,300
Goodwill	18,178	18,381
Other intangible assets - net	5,632	6,187
Investments in partially-owned affiliates	853	848
Noncurrent assets held for sale	60	5,188
Other noncurrent assets	1,823	3,070
Total assets	$ 42,287	$ 48,797
Liabilities and Equity		
Short-term debt	$ 10	$ 1,306
Current portion of long-term debt	501	1
Accounts payable	3,582	3,407
Accrued compensation and benefits	953	1,021
Deferred revenue	1,407	1,326
Liabilities held for sale	44	1,791
Other current liabilities	2,573	2,398
Current liabilities	9,070	11,250
Long-term debt	6,708	9,623
Pension and postretirement benefits	1,044	616
Noncurrent liabilities held for sale	—	207
Other noncurrent liabilities	4,636	4,643
Long-term liabilities	12,388	15,089
Commitments and contingencies (Note 22)		
Ordinary shares (par value $0.01; 2.0 billion shares authorized; shares issued: 2019 - 804,495,430; 2018 - 950,969,965)	8	10
Ordinary A shares (par value €1.00; 40,000 shares authorized, none outstanding as of September 30, 2019 and 2018)	—	—
Preferred shares (par value $0.01; 200,000,000 shares authorized, none outstanding as of September 30, 2019 and 2018)	—	—
Ordinary shares held in treasury, at cost (shares held: 2019 - 26,864,793; 2018 - 25,963,004)	(1,086)	(1,053)
Capital in excess of par value	16,812	16,549
Retained earnings	4,827	6,604
Accumulated other comprehensive loss	(795)	(946)
Shareholders' equity attributable to Johnson Controls	19,766	21,164
Noncontrolling interests	1,063	1,294
Total equity	20,829	22,458
Total liabilities and equity	$ 42,287	$ 48,797

The accompanying notes are an integral part of the consolidated financial statements.

Johnson Controls International plc
Consolidated Statements of Cash Flows

(in millions)	Year Ended September 30, 2019	2018	2017
Operating Activities of Continuing Operations			
Net income from continuing operations attributable to Johnson Controls	$ 1,100	$ 1,175	$ 672
Income from continuing operations attributable to noncontrolling interests	189	174	157
Net income from continuing operations	1,289	1,349	829
Adjustments to reconcile net income from continuing operations to cash provided by operating activities:			
Depreciation and amortization	825	824	919
Pension and postretirement benefit expense (income)	515	(170)	(533)
Pension and postretirement contributions	(53)	(56)	(342)
Equity in earnings of partially-owned affiliates, net of dividends received	(34)	(128)	(92)
Deferred income taxes	612	(739)	573
Non-cash restructuring and impairment charges	235	36	71
Gain on Scott Safety business divestiture	—	(114)	—
Equity-based compensation	95	106	134
Other - net	29	(35)	(12)
Changes in assets and liabilities, excluding acquisitions and divestitures:			
Accounts receivable	(312)	(475)	(225)
Inventories	(72)	(103)	(51)
Other assets	(99)	(171)	(112)
Restructuring reserves	(121)	1	95
Accounts payable and accrued liabilities	56	340	(130)
Accrued income taxes	(1,222)	855	(753)
Cash provided by operating activities from continuing operations	1,743	1,520	371
Investing Activities of Continuing Operations			
Capital expenditures	(586)	(645)	(760)
Sale of property, plant and equipment	27	48	29
Acquisition of businesses, net of cash acquired	(25)	(21)	(6)
Business divestitures, net of cash divested	12	2,202	168
Changes in long-term investments	25	(1)	(21)
Proceeds (payments) for equity swap	14	(15)	(58)
Cash provided (used) by investing activities from continuing operations	(533)	1,568	(648)
Financing Activities of Continuing Operations			
Increase (decrease) in short-term debt - net	(1,296)	96	143
Increase in long-term debt	—	1,136	1,857
Repayment of long-term debt	(2,333)	(3,704)	(1,275)
Debt financing costs	—	(4)	(18)
Stock repurchases	(5,983)	(300)	(651)
Payment of cash dividends	(920)	(954)	(702)
Proceeds from the exercise of stock options	171	66	157
Dividends paid to noncontrolling interests	(132)	(43)	(57)
Cash paid to prior acquisitions	—	—	(75)
Cash received for prior divestitures	4	—	—
Employee equity-based compensation withholding	(31)	(42)	(34)
Other - net	1	—	6
Cash used by financing activities from continuing operations	(10,519)	(3,749)	(649)
Discontinued Operations			
Cash provided (used) by operating activities	(541)	996	(271)
Cash provided (used) by investing activities	12,611	(372)	(599)
Cash used by financing activities	(35)	(3)	(703)
Cash provided (used) by discontinued operations	12,035	621	(1,573)
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(120)	(106)	54
Change in cash, cash equivalents and restricted cash held for sale	15	14	2,123
Increase (decrease) in cash, cash equivalents and restricted cash	2,621	(132)	(322)
Cash, cash equivalents and restricted cash at beginning of period	200	332	654
Cash, cash equivalents and restricted cash at end of period	2,821	200	332
Less: Restricted cash	16	15	31
Cash and cash equivalents at end of period	$ 2,805	$ 185	$ 301

The accompanying notes are an integral part of the consolidated financial statements.

Johnson Controls International plc
Consolidated Statements of Shareholders' Equity Attributable to Johnson Controls Ordinary Shareholders

(in millions, except per share data)	Total	Ordinary Shares	Capital in Excess of Par Value	Retained Earnings	Treasury Stock, at Cost	Accumulated Other Comprehensive Income (Loss)
At September 30, 2016	$ 24,118	$ 9	$ 16,105	$ 9,177	$ (20)	$ (1,153)
Comprehensive income	1,710	—	—	1,611	—	99
Cash dividends Ordinary ($1.00 per share)	(938)	—	—	(938)	—	—
Repurchases of ordinary shares	(651)	—	—	—	(651)	—
Spin-off of Adient	(4,038)	—	—	(4,619)	—	581
Other, including options exercised	246	—	285	—	(39)	—
At September 30, 2017	20,447	9	16,390	5,231	(710)	(473)
Comprehensive income (loss)	1,689	—	—	2,162	—	(473)
Cash dividends Ordinary ($1.04 per share)	(968)	—	—	(968)	—	—
Repurchases of ordinary shares	(300)	—	—	—	(300)	—
Adoption of ASU 2016-09	179	—	—	179	—	—
Other, including options exercised	117	1	159	—	(43)	—
At September 30, 2018	21,164	10	16,549	6,604	(1,053)	(946)
Comprehensive income (loss)	5,350	—	—	5,674	—	(324)
Cash dividends Ordinary ($1.04 per share)	(887)	—	—	(887)	—	—
Repurchases and retirements of ordinary shares	(5,983)	(2)	—	(5,981)	—	—
Divestiture of Power Solutions	483	—	—	—	—	483
Adoption of ASC 606	(45)	—	—	(45)	—	—
Adoption of ASU 2016-01	—	—	—	8	—	(8)
Adoption of ASU 2016-16	(546)	—	—	(546)	—	—
Other, including options exercised	230	—	263	—	(33)	—
At September 30, 2019	**$ 19,766**	**$ 8**	**$ 16,812**	**$ 4,827**	**$ (1,086)**	**$ (795)**

The accompanying notes are an integral part of the consolidated financial statements.

1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The consolidated financial statements include the consolidated accounts of Johnson Controls International plc, a corporation organized under the laws of Ireland, and its subsidiaries (Johnson Controls International plc and all its subsidiaries, hereinafter collectively referred to as the "Company," "Johnson Controls" or "JCI plc").

Nature of Operations

Johnson Controls International plc, headquartered in Cork, Ireland, is a global diversified technology and multi industrial leader serving a wide range of customers in more than 150 countries. The Company creates intelligent buildings, efficient energy solutions and integrated infrastructure that work seamlessly together to deliver on the promise of smart cities and communities. The Company is committed to helping its customers win and creating greater value for all of its stakeholders through its strategic focus on buildings.

In the fourth quarter of fiscal 2016, Johnson Controls, Inc. ("JCI Inc.") and Tyco International plc ("Tyco") completed their combination, with JCI Inc. merging with a wholly owned, indirect subsidiary of Tyco (the "Merger"). Following the Merger, Tyco changed its name to “Johnson Controls International plc” and JCI Inc. is a wholly-owned subsidiary of Johnson Controls International plc. The Merger was accounted for as a reverse acquisition using the acquisition method of accounting in accordance with Accounting Standards Codification ("ASC") 805, "Business Combinations." JCI Inc. was the accounting acquirer for financial reporting purposes. Accordingly, the historical consolidated financial statements of JCI Inc. for periods prior to this transaction are considered to be the historic financial statements of the Company.

On November 13, 2018, the Company entered into a Stock and Asset Purchase Agreement (“Purchase Agreement”) with BCP Acquisitions LLC (“Purchaser”). The Purchaser is a newly-formed entity controlled by investment funds managed by Brookfield Capital Partners LLC. Pursuant to the Purchase Agreement, on the terms and subject to the conditions therein, the Company agreed to sell, and Purchaser agreed to acquire, the Company’s Power Solutions business for a purchase price of $13.2 billion. The transaction closed on April 30, 2019 with net cash proceeds of $11.6 billion after tax and transaction-related expenses.

During the first quarter of fiscal 2019, the Company determined that its Power Solutions business met the criteria to be classified as a discontinued operation and, as a result, Power Solutions' historical financial results are reflected in the Company's consolidated financial statements as a discontinued operation, and assets and liabilities were retrospectively reclassified as assets and liabilities held for sale. Refer to Note 3, "Discontinued Operations," of the notes to consolidated financial statements for further information.

The Company is a global market leader in engineering, developing, manufacturing and installing building products and systems around the world, including heating, ventilating, air-conditioning ("HVAC") equipment, HVAC controls, energy-management systems, security systems, fire detection systems and fire suppression solutions. The Company further serves customers by providing technical services (in the HVAC, security and fire-protection space), energy-management consulting and data-driven solutions via its data-enabled business. Finally, the Company has a strong presence in the North American residential air conditioning and heating systems market and is a global market leader in industrial refrigeration products.

Principles of Consolidation

The consolidated financial statements include the consolidated accounts of Johnson Controls International plc and its subsidiaries that are consolidated in conformity with accounting principles generally accepted in the United States of America ("U.S. GAAP"). All significant intercompany transactions have been eliminated. The results of companies acquired or disposed of during the year are included in the consolidated financial statements from the effective date of acquisition or up to the date of disposal. Investments in partially-owned affiliates are accounted for by the equity method when the Company’s interest exceeds 20% and the Company does not have a controlling interest.

The Company consolidates variable interest entities ("VIE") in which the Company has the power to direct the significant activities of the entity and the obligation to absorb losses or receive benefits from the entity that may be significant. The Company did not have a significant variable interest in any consolidated or nonconsolidated VIEs in its continuing operations for the presented reporting periods.

Use of Estimates

The preparation of consolidated financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Fair Value of Financial Instruments

The fair values of cash and cash equivalents, accounts receivable, short-term debt and accounts payable approximate their carrying values. See Note 10, "Derivative Instruments and Hedging Activities," and Note 11, "Fair Value Measurements," of the notes to consolidated financial statements for fair value of financial instruments, including derivative instruments, hedging activities and long-term debt.

Assets and Liabilities Held for Sale

The Company classifies assets and liabilities (disposal groups) to be sold as held for sale in the period in which all of the following criteria are met: management, having the authority to approve the action, commits to a plan to sell the disposal group; the disposal group is available for immediate sale in its present condition subject only to terms that are usual and customary for sales of such disposal groups; an active program to locate a buyer and other actions required to complete the plan to sell the disposal group have been initiated; the sale of the disposal group is probable, and transfer of the disposal group is expected to qualify for recognition as a completed sale within one year, except if events or circumstances beyond the Company's control extend the period of time required to sell the disposal group beyond one year; the disposal group is being actively marketed for sale at a price that is reasonable in relation to its current fair value; and actions required to complete the plan indicate that it is unlikely that significant changes to the plan will be made or that the plan will be withdrawn.

In addition, the Company classifies disposal groups to be disposed of other than by sale (e.g. spin-off) as held for sale in the period the disposal occurs.

The Company initially measures a disposal group that is classified as held for sale at the lower of its carrying value or fair value less any costs to sell. Any loss resulting from this measurement is recognized in the period in which the held for sale criteria are met. Conversely, gains are not recognized on the sale of a disposal group until the date of sale. The Company assesses the fair value of a disposal group, less any costs to sell, each reporting period it remains classified as held for sale and reports any subsequent changes as an adjustment to the carrying value of the disposal group, as long as the new carrying value does not exceed the carrying value of the disposal group at the time it was initially classified as held for sale.

Upon determining that a disposal group meets the criteria to be classified as held for sale, the Company reports the assets and liabilities of the disposal group, if material, in the line items assets held for sale and liabilities held for sale in the consolidated statements of financial position. Refer to Note 3, "Discontinued Operations," of the notes to consolidated financial statements for further information.

Cash and Cash Equivalents

The Company considers all highly liquid investments with an original maturity of three months or less when purchased to be cash equivalents.

Restricted Cash

At September 30, 2019, the Company held restricted cash of approximately $16 million, all of which was recorded within other current assets in the consolidated statements of financial position. These amounts related to cash restricted for payment of asbestos liabilities. At September 30, 2018, the Company held restricted cash of approximately $15 million, of which $6 million was recorded within other current assets in the consolidated statements of financial position and $9 million was recorded within other noncurrent assets in the consolidated statements of financial position.

Receivables

Receivables consist of amounts billed and currently due from customers and unbilled costs and accrued profits related to revenues on long-term contracts that have been recognized for accounting purposes but not yet billed to customers. The Company extends credit to customers in the normal course of business and maintains an allowance for doubtful accounts resulting from the inability or unwillingness of customers to make required payments. The allowance for doubtful accounts is based on historical experience, existing economic conditions and any specific customer collection issues the Company has identified. The Company enters into supply chain financing programs to sell certain accounts receivable without recourse to third-party financial institutions. Sales of accounts receivable are reflected as a reduction of accounts receivable on the consolidated statements of financial position and the proceeds are included in cash flows from operating activities in the consolidated statements of cash flows.

Inventories

Inventories are stated at the lower of cost or market using the first-in, first-out ("FIFO") method. Finished goods and work-in-process inventories include material, labor and manufacturing overhead costs.

Property, Plant and Equipment

Property, plant and equipment are recorded at cost. Depreciation is provided over the estimated useful lives of the respective assets using the straight-line method for financial reporting purposes and accelerated methods for income tax purposes. The estimated useful lives generally range from 3 to 40 years for buildings and improvements, subscriber systems up to 15 years, and from 3 to 15 years for machinery and equipment. The Company capitalizes interest on borrowings during the active construction period of major capital projects. Capitalized interest is added to the cost of the underlying assets and is amortized over the useful lives of the assets.

Goodwill and Indefinite-Lived Intangible Assets

Goodwill reflects the cost of an acquisition in excess of the fair values assigned to identifiable net assets acquired. The Company reviews goodwill for impairment during the fourth fiscal quarter or more frequently if events or changes in circumstances indicate the asset might be impaired. The Company performs impairment reviews for its reporting units, which have been determined to be the Company's reportable segments or one level below the reportable segments in certain instances, using a fair value method based on management's judgments and assumptions or third party valuations. The fair value of a reporting unit refers to the price that would be received to sell the unit as a whole in an orderly transaction between market participants at the measurement date. In estimating the fair value, the Company uses multiples of earnings based on the average of published multiples of earnings of comparable entities with similar operations and economic characteristics and applies to the Company's average of historical and future financial results. In certain instances, the Company uses discounted cash flow analyses or estimated sales price to further support the fair value estimates. The inputs utilized in the analyses are classified as Level 3 inputs within the fair value hierarchy as defined in ASC 820, "Fair Value Measurement." The estimated fair value is then compared with the carrying amount of the reporting unit, including recorded goodwill. The Company is subject to financial statement risk to the extent that the carrying amount exceeds the estimated fair value. Refer to Note 7, "Goodwill and Other Intangible Assets," of the notes to consolidated financial statements for information regarding the goodwill impairment testing performed in fiscal years 2019, 2018 and 2017.

Indefinite-lived intangible assets are also subject to at least annual impairment testing. Indefinite-lived intangible assets primarily consist of trademarks and tradenames and are tested for impairment using a relief-from-royalty method. A considerable amount of management judgment and assumptions are required in performing the impairment tests.

Impairment of Long-Lived Assets

The Company reviews long-lived assets, including tangible assets and other intangible assets with definitive lives, for impairment whenever events or changes in circumstances indicate that the asset's carrying amount may not be recoverable. The Company conducts its long-lived asset impairment analyses in accordance with ASC 360-10-15, "Impairment or Disposal of Long-Lived Assets," ASC 350-30, "General Intangibles Other than Goodwill" and ASC 985-20, "Costs of Software to be Sold, Leased, or Marketed." ASC 360-10-15 requires the Company to group assets and liabilities at the lowest level for which identifiable cash flows are largely independent of the cash flows of other assets and liabilities and evaluate the asset group against the sum of the undiscounted future cash flows. If the undiscounted cash flows do not indicate the carrying amount of the asset group is recoverable, an impairment charge is measured as the amount by which the carrying amount of the asset group exceeds its fair value based on discounted cash flow analysis or appraisals. ASC 350-30 requires intangible assets acquired in a business combination that are used in research and development activities to be considered indefinite lived until the completion or abandonment of the associated research and development efforts. During the period that those assets are considered indefinite lived, they shall not be amortized but shall be tested for impairment annually and more frequently if events or changes in circumstances indicate that it is more likely than not that the asset is impaired. If the carrying amount of an intangible asset exceeds its fair value, an entity shall recognize an impairment loss in an amount equal to that excess. ASC 985-20 requires the unamortized capitalized costs of a computer software product be compared to the net realizable value of that product. The amount by which the unamortized capitalized costs of a computer software product exceed the net realizable value of that asset shall be written off. Refer to Note 17, "Impairment of

Long-Lived Assets," of the notes to consolidated financial statements for information regarding the impairment testing performed in fiscal years 2019, 2018 and 2017.

Revenue Recognition

The Company recognizes revenue from certain long-term contracts to design, manufacture and install building products and systems as well as unscheduled repair or replacement services on an over time basis, with progress towards completion measured using a cost-to-cost input method based on the relationship between actual costs incurred and total estimated costs at completion. The cost-to-cost input method is used as it best depicts the transfer of control to the customer that occurs as the Company incurs costs. Changes to the original estimates may be required during the life of the contract and such estimates are reviewed monthly. If contract modifications result in additional goods or services that are distinct from those transferred before the modification, they are accounted for prospectively as if the Company entered into a new contract. If the goods or services in the modification are not distinct from those in the original contract, sales and gross profit are adjusted using the cumulative catch-up method for revisions in estimated total contract costs and contract values. Estimated losses are recorded when identified. The Company does not adjust the promised amount of consideration for the effects of a significant financing component as at contract inception the Company expects to receive the payment within twelve months of transfer of goods or services.

The Company enters into extended warranties and long-term service and maintenance agreements with certain customers. For these arrangements, revenue is recognized over time on a straight-line basis over the respective contract term.

The Company also sells certain HVAC and refrigeration products and services in bundled arrangements with multiple performance obligations, such as equipment, commissioning, service labor and extended warranties. Approximately four to twelve months separate the timing of the first deliverable until the last piece of equipment is delivered, and there may be extended warranty arrangements with duration of one to five years commencing upon the end of the standard warranty period. In addition, the Company sells security monitoring systems that may have multiple performance obligations, including equipment, installation, monitoring services and maintenance agreements. Revenues associated with sale of equipment and related installations are recognized over time on a cost-to-cost input method, while the revenue for monitoring and maintenance services are recognized over time as services are rendered. The transaction price is allocated to each performance obligation based on the relative selling price method. In order to estimate relative selling price, market data and transfer price studies are utilized. If the standalone selling price is not directly observable, the Company estimates the standalone selling price using an adjusted market assessment approach or expected cost plus margin approach. For transactions in which the Company retains ownership of the subscriber system asset, fees for monitoring and maintenance services are recognized over time on a straight-line basis over the contract term. Non-refundable fees received in connection with the initiation of a monitoring contract, along with associated direct and incremental selling costs, are deferred and amortized over the estimated life of the contract.

In all other cases, the Company recognizes revenue at the point in time when control over the goods or services transfers to the customer.

The Company considers the contractual consideration payable by the customer and assesses variable consideration that may affect the total transaction price, including discounts, rebates, refunds, credits or other similar sources of variable consideration, when determining the transaction price of each contract. The Company includes variable consideration in the estimated transaction price when it is probable that significant reversal of revenue recognized would not occur when the uncertainty associated with variable consideration is subsequently resolved. These estimates are based on the amount of consideration that the Company expects to be entitled to.

Shipping and handling costs billed to customers are included in sales and the related costs are included in cost of sales when control transfers to the customer. The Company presents amounts collected from customers for sales and other taxes net of the related amounts remitted.

Subscriber System Assets, Dealer Intangibles and Related Deferred Revenue Accounts

The Company considers assets related to the acquisition of new customers in its electronic security business in three asset categories: internally generated residential subscriber systems outside of North America, internally generated commercial subscriber systems (collectively referred to as subscriber system assets) and customer accounts acquired through the ADT dealer program, primarily outside of North America (referred to as dealer intangibles). Subscriber system assets include installed property, plant and equipment for which the Company retains ownership and deferred costs directly related to the customer acquisition and system installation. Subscriber system assets represent capitalized equipment (e.g. security control panels, touchpad, motion detectors, window sensors, and other equipment) and installation costs associated with electronic security monitoring arrangements under which the Company retains ownership of the security system assets in a customer's place of business, or outside of North America, residence. Installation costs represent costs incurred to prepare the asset for its intended use. The Company pays property taxes on the subscriber system assets and upon customer termination, may retrieve such assets. These assets embody a probable future economic benefit as they generate future monitoring revenue for the Company.

Costs related to the subscriber system equipment and installation are categorized as property, plant and equipment rather than deferred costs. Deferred costs associated with subscriber system assets represent direct and incremental selling expenses (such as commissions) related to acquiring the customer. Commissions related to up-front consideration paid by customers in connection with the establishment of the monitoring arrangement are determined based on a percentage of the up-front fees and do not exceed deferred revenue. Such deferred costs are recorded as other current and noncurrent assets within the consolidated statements of financial position.

Subscriber system assets and any deferred revenue resulting from the customer acquisition are accounted for over the expected life of the subscriber. In certain geographical areas where the Company has a large number of customers that behave in a similar manner over time, the Company accounts for subscriber system assets and related deferred revenue using pools, with separate pools for the components of subscriber system assets and any related deferred revenue based on the same month and year of acquisition. The Company depreciates its pooled subscriber system assets and related deferred revenue using a straight-line method with lives up to 12 years and considering customer attrition. The Company uses a straight-line method with a 15-year life for non-pooled subscriber system assets (primarily in Europe, Latin America and Asia) and related deferred revenue, with remaining balances written off upon customer termination.

Certain contracts and related customer relationships result from purchasing residential security monitoring contracts from an external network of independent dealers who operate under the ADT dealer program, primarily outside of North America. Acquired contracts and related customer relationships are recorded at their contractually determined purchase price.

During the first 6 months (12 months in certain circumstances) after the purchase of the customer contract, any cancellation of monitoring service, including those that result from customer payment delinquencies, results in a chargeback by the Company to the dealer for the full amount of the contract purchase price. The Company records the amount charged back to the dealer as a reduction of the previously recorded intangible asset.

Intangible assets arising from the ADT dealer program described above are amortized in pools determined by the same month and year of contract acquisition on a straight-line basis over the period of the customer relationship. The estimated useful life of dealer intangibles ranges from 12 to 15 years.

Research and Development Costs

Expenditures for research activities relating to product development and improvement are charged against income as incurred and included within selling, general and administrative expenses for continuing operations in the consolidated statements of income. Such expenditures for the years ended September 30, 2019, 2018 and 2017 were \$319 million, \$310 million and \$307 million, respectively.

Earnings Per Share

The Company presents both basic and diluted earnings per share ("EPS") amounts. Basic EPS is calculated by dividing net income attributable to Johnson Controls by the weighted average number of common shares outstanding during the reporting period. Diluted EPS is calculated by dividing net income attributable to Johnson Controls by the weighted average number of common shares and common equivalent shares outstanding during the reporting period that are calculated using the treasury stock method for stock options, unvested restricted stock and unvested performance share awards. See Note 13, "Earnings per Share," of the notes to consolidated financial statements for the calculation of earnings per share.

Foreign Currency Translation

Substantially all of the Company's international operations use the respective local currency as the functional currency. Assets and liabilities of international entities have been translated at period-end exchange rates, and income and expenses have been translated using average exchange rates for the period. Monetary assets and liabilities denominated in non-functional currencies are adjusted to reflect period-end exchange rates. The aggregate transaction gains (losses), net of the impact of foreign currency hedges, included in income from continuing operations for the years ended September 30, 2019, 2018 and 2017 were \$(10) million, \$1 million and \$60 million, respectively.

Derivative Financial Instruments

The Company has written policies and procedures that place all financial instruments under the direction of Corporate treasury and restrict all derivative transactions to those intended for hedging purposes. The use of financial instruments for speculative purposes is strictly prohibited. The Company selectively uses financial instruments to manage the market risk from changes in foreign exchange rates, commodity prices, stock-based compensation liabilities and interest rates.

The fair values of all derivatives are recorded in the consolidated statements of financial position. The change in a derivative's fair value is recorded each period in current earnings or accumulated other comprehensive income ("AOCI"), depending on whether the derivative is designated as part of a hedge transaction and if so, the type of hedge transaction. See Note 10, "Derivative Instruments and Hedging Activities," and Note 11, "Fair Value Measurements," of the notes to consolidated financial statements for disclosure of the Company's derivative instruments and hedging activities.

Investments

The Company invests in debt and equity securities which are marked to market at the end of each accounting period. For fiscal 2019, unrealized gains and losses on these securities are recognized in the Company's consolidated statements of income. For periods prior to fiscal 2019, the unrealized gains and losses on these securities, other than the deferred compensation plan assets, were recognized in AOCI within the consolidated statement of shareholders' equity unless an unrealized loss is deemed to be other than temporary, in which case such loss was charged to earnings. The deferred compensation plan assets are marked to market at the end of each accounting period and all unrealized gains and losses are recorded in the consolidated statements of income.

Pension and Postretirement Benefits

The Company utilizes a mark-to-market approach for recognizing pension and postretirement benefit expenses, including measuring the market related value of plan assets at fair value and recognizing actuarial gains and losses in the fourth quarter of each fiscal year or at the date of a remeasurement event. Refer to Note 15, "Retirement Plans," of the notes to consolidated financial statements for disclosure of the Company's pension and postretirement benefit plans.

Loss Contingencies

Accruals are recorded for various contingencies including legal proceedings, environmental matters, self-insurance and other claims that arise in the normal course of business. The accruals are based on judgment, the probability of losses and, where applicable, the consideration of opinions of internal and/or external legal counsel and actuarially determined estimates. Additionally, the Company records receivables from third party insurers when recovery has been determined to be probable.

The Company is subject to laws and regulations relating to protecting the environment. The Company provides for expenses associated with environmental remediation obligations when such amounts are probable and can be reasonably estimated. Refer to Note 22, "Commitments and Contingencies," of the notes to consolidated financial statements.

The Company records liabilities for its workers' compensation, product, general and auto liabilities. The determination of these liabilities and related expenses is dependent on claims experience. For most of these liabilities, claims incurred but not yet reported are estimated by utilizing actuarial valuations based upon historical claims experience. The Company records receivables from third party insurers when recovery has been determined to be probable. The Company maintains captive insurance companies to manage its insurable liabilities.

Asbestos-Related Contingencies and Insurance Receivables

The Company and certain of its subsidiaries along with numerous other companies are named as defendants in personal injury lawsuits based on alleged exposure to asbestos-containing materials. The Company's estimate of the liability and corresponding insurance recovery for pending and future claims and defense costs is based on the Company's historical claim experience, and estimates of the number and resolution cost of potential future claims that may be filed and is discounted to present value from 2068 (which is the Company's reasonable best estimate of the actuarially determined time period through which asbestos-related claims will be filed against Company affiliates). Asbestos related defense costs are included in the asbestos liability. The Company's legal strategy for resolving claims also impacts these estimates. The Company considers various trends and developments in evaluating the period of time (the look-back period) over which historical claim and settlement experience is used to estimate and value claims reasonably projected to be made through 2068. Annually, the Company assesses the sufficiency of its estimated liability for pending and future claims and defense costs by evaluating actual experience regarding claims filed, settled and dismissed, and amounts paid in settlements. In addition to claims and settlement experience, the Company considers additional quantitative and qualitative factors such as changes in legislation, the legal environment, and the Company's defense strategy. The Company also evaluates the recoverability of its insurance receivable on an annual basis. The Company evaluates all of these factors and determines whether a change in the estimate of its liability for pending and future claims and defense costs or insurance receivable is warranted.

In connection with the recognition of liabilities for asbestos-related matters, the Company records asbestos-related insurance recoveries that are probable. The Company's estimate of asbestos-related insurance recoveries represents estimated amounts due to the Company for previously paid and settled claims and the probable reimbursements relating to its estimated liability for pending and future claims discounted to present value. In determining the amount of insurance recoverable, the Company considers available insurance, allocation methodologies, solvency and creditworthiness of the insurers. Refer to Note 22, "Commitments and Contingencies," of the notes to consolidated financial statements for a discussion on management's judgments applied in the recognition and measurement of asbestos-related assets and liabilities.

Income Taxes

Deferred tax liabilities and assets are recognized for the expected future tax consequences of events that have been reflected in the consolidated financial statements. Deferred tax liabilities and assets are determined based on the differences between the book and tax basis of particular assets and liabilities and operating loss carryforwards, using tax rates in effect for the years in which the differences are expected to reverse. A valuation allowance is provided to reduce the carrying or book value of deferred tax assets if, based upon the available evidence, including consideration of tax planning strategies, it is more-likely-than-not that some or all of the deferred tax assets will not be realized. Refer to Note 18, "Income Taxes," of the notes to consolidated financial statements.

Retrospective Changes

During the first quarter of fiscal 2019, the Company determined that its Power Solutions business met the criteria to be classified as a discontinued operation, which required retrospective application to financial information for all periods presented. Refer to Note 3, "Discontinued Operations" of the notes to consolidated financial statements for further information regarding the Company's discontinued operations.

In November 2016, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2016-18, "Statement of Cash Flows (Topic 230): Restricted Cash (a consensus of the FASB Emerging Issues Task Force)." The ASU requires amounts generally described as restricted cash and restricted cash equivalents to be included with cash and cash equivalents when reconciling the beginning-of-period and end-of-period total amounts shown on the statement of cash flows. ASU No. 2016-18 was effective retrospectively for the quarter ended December 31, 2018. As of September 30, 2016, the Company had approximately $2.0 billion of restricted cash related to restricted proceeds deposited into escrow from the issuance of $2.0 billion aggregate principal of unsecured, unsubordinated notes by Adient Global Holdings Ltd., that were released upon the completion of the Adient spin-off in October 2016. Upon adoption of ASU 2016-18, the release of the restricted proceeds are presented in the fiscal 2017 consolidated statements of cash flow as a financing activity outflow from discontinued operations. The remaining impact of this guidance did not have a significant impact on the Company's consolidated financial statements for the periods presented, as the restricted cash balance for the fiscal years ended September 30, 2019 and 2018 was $16 million and $15 million, respectively.

In August 2016, the FASB issued ASU No. 2016-15, "Statement of Cash Flows (Topic 230): Classification of Certain Cash Receipts and Cash Payments." ASU No. 2016-15 provides clarification guidance on eight specific cash flow presentation issues in order to reduce the diversity in practice. ASU No. 2016-15 was effective retrospectively for the Company for the quarter ending December

31, 2018. The adoption of this guidance had an impact on the presentation of equity swap funding and settlement activities since the activity changed from an operating activity to an investing activity.

New Accounting Pronouncements

Recently Adopted Accounting Pronouncements

In March 2018, the FASB issued ASU No. 2018-05, "Income Taxes (Topic 740): Amendments to SEC Paragraphs Pursuant to SEC Staff Accounting Bulletin No. 118," to add various SEC paragraphs pursuant to the issuance of SEC Staff Accounting Bulletin No. 118 ("SAB 118") to ASC 740 "Income Taxes." SAB 118 was issued by the SEC in December 2017 to provide immediate guidance for accounting implications of U.S. Tax Reform under the "Tax Cuts and Jobs Act" in the period of enactment. SAB 118 provides for a provisional one year measurement period for entities to finalize their accounting for certain income tax effects related to the "Tax Cuts and Jobs Act." The Company applied this guidance to its consolidated financial statements and related disclosures beginning in the first quarter of fiscal 2018. In the first quarter of fiscal 2019, the Company completed its analysis of all enactment-date income tax effects of the U.S. tax law change. Refer to Note 18, "Income Taxes," of the notes to consolidated financial statements for further information.

In March 2017, the FASB issued ASU No. 2017-07, "Compensation—Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost." The ASU requires the service cost component of net periodic benefit cost to be presented with other compensation costs. The other components of net periodic benefit cost are required to be presented in the income statement separately from the service cost component and outside a subtotal of income from operations, if one is presented. The ASU also allows only the service cost component of net periodic benefit cost to be eligible for capitalization. ASU No. 2017-07 was effective for the quarter ended December 31, 2018. The guidance was effective retrospectively except for the capitalization of the service cost component which was applied prospectively. The adoption of this guidance did not have a significant impact on the Company's consolidated financial statements as the Company does not present a subtotal of income from operations within its consolidated statements of income.

In October 2016, the FASB issued ASU No. 2016-16, "Accounting for Income Taxes: Intra-Entity Asset Transfers of Assets Other than Inventory." The ASU requires the tax effects of all intra-entity sales of assets other than inventory to be recognized in the period in which the transaction occurs. The guidance was effective for the Company for the quarter ended December 31, 2018. The changes were applied by means of a cumulative-effect adjustment which resulted in a reduction to retained earnings and other noncurrent assets of $546 million.

In January 2016, the FASB issued ASU No. 2016-01, "Financial Instruments - Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities." ASU No. 2016-01 amends certain aspects of recognition, measurement, presentation and disclosure of financial instruments, including marketable securities. Additionally in February 2018, the FASB issued ASU No. 2018-03, "Technical Corrections and Improvements to Financial Instruments - Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities," which provides additional clarification on certain topics addressed in ASU No. 2016-01. ASU No. 2016-01 and ASU No. 2018-03 were effective for the Company for the quarter ending December 31, 2018. The changes were applied by means of a cumulative-effect adjustment which resulted in an increase to retained earnings of $8 million. The new standard requires the mark-to-market of marketable securities investments previously recorded within accumulated other comprehensive income on the statement of financial position be recorded in the statement of income on a prospective basis beginning as of the adoption date. As these restricted investments do not relate to the underlying operating performance of its business, the Company’s definition of segment earnings excludes the mark-to-market adjustments beginning in the first quarter of fiscal 2019. Refer to Note 19, "Segment Information," of the notes to consolidated financial statements for further information.

In May 2014, the FASB issued ASU No. 2014-09, "Revenue from Contracts with Customers (Topic 606)." ASU No. 2014-09 and its related amendments (collectively, the “New Revenue Standard”) clarify the principles for recognizing revenue when an entity either enters into a contract with customers to transfer goods or services or enters into a contract for the transfer of non-financial assets. The Company adopted the New Revenue Standard on October 1, 2018 using a modified retrospective approach. Under the New Revenue Standard, revenue recognition is mostly consistent with the previous guidance, with the exception of the Power Solutions business, which is now reported as a discontinued operation beginning in the first quarter of fiscal 2019. Within the Power Solutions business, certain customers return battery cores which are now included in the transaction price as noncash consideration. The New Revenue Standard did not have a material impact on the Company’s consolidated statements of financial position, consolidated statements of income or its consolidated statements of cash flows. As of October 1, 2018, the Company applied the New Revenue Standard to contracts that were not completed as of this date and recognized a cumulative-effect adjustment of a reduction to retained earnings of $45 million, which relates primarily to deferred revenue recorded for certain battery core returns that represent a material right provided to customers. The prior period comparative information has not been revised and continues to be reported under the previous guidance.

The impact of adoption of the New Revenue Standard to the Company's consolidated statement of income for the fiscal year ended September 30, 2019 for continuing operations was an increase to net sales of approximately $3 million, with the impact to income before taxes of less than $1 million. The impact of adoption of the New Revenue Standard to the Company's consolidated statement of income for the fiscal year ended September 30, 2019 for discontinued operations was an increase to net sales of $667 million, with the impact to income from discontinued operations, net of tax, of approximately $26 million.

The impact of adoption of the New Revenue Standard to the Company's consolidated statement of financial position as of September 30, 2019 is as follows (in millions):

	September 30, 2019		
	As reported	**Under previous accounting guidance**	**Impact from adopting the New Revenue Standard**
Consolidated Statement of Financial Position			
Assets			
Accounts receivable - net	$ 5,770	$ 5,802	$ (32)
Inventories	1,814	1,828	(14)
Other current assets	1,906	1,931	(25)
Property, plant and equipment - net	3,348	3,308	40
Other noncurrent assets	1,823	1,794	29
Liabilities and Equity			
Deferred revenue	1,407	1,398	9
Retained earnings	4,827	4,838	(11)

Recently Issued Accounting Pronouncements

In February 2016, the FASB issued ASU No. 2016-02, "Leases (Topic 842)." ASU No. 2016-02 requires recognition of operating leases as lease assets and liabilities on the balance sheet, and disclosure of key information about leasing arrangements. The original standard was effective retrospectively for the Company for the quarter ending December 31, 2019 with early adoption permitted; however, in July 2018 the FASB issued ASU No. 2018-11, "Leases (Topic 842): Targeted Improvements," which provides an additional transition method that permits changes to be applied by means of a cumulative-effect adjustment recorded in retained earnings as of the beginning of the fiscal year of adoption. The Company has elected this transition method at the adoption date of October 1, 2019. The FASB further amended Topic 842 by issuing ASU No. 2018-01, "Leases (Topic 842): Land Easement Practical Expedient for Transition to Topic 842," which provides an optional transition practical expedient for existing or expired land easements that were not previously recorded as leases, ASU No. 2018-10, "Codification Improvements to Topic 842, Leases," ASU No. 2018-20, "Leases (Topic 842): Narrow-Scope Improvements for Lessors," and ASU No. 2019-01, "Leases (Topic 842): Codification Improvements." The Company has populated its leases into new lease accounting software and is designing and implementing new processes and controls for the accounting for leases under the new guidance. The Company is the lessee under various agreements for facilities and equipment that are currently accounted for as operating leases. The new guidance will require the Company to record operating leases on the balance sheet with a right-of-use ("ROU") asset and corresponding lease liability for future payment obligations. The Company has elected to apply the package of transitional practical expedients, under which the Company will not reassess prior conclusions about lease identification, lease classification, and initial direct costs of existing leases as of the date of adoption. The Company expects the ROU asset and operating lease liability to be less than 3% of its total assets. However, the Company does not expect the new guidance to have a material impact on its consolidated statements of income and its consolidated statements of cash flows.

Other recently issued accounting pronouncements are not expected to have a material impact on the Company's consolidated financial statements.

2. ACQUISITIONS AND DIVESTITURES

Fiscal Year 2019

On April 30, 2019, the Company completed the sale of its Power Solutions business to BCP Acquisitions LLC for a purchase price of $13.2 billion. The net cash proceeds after tax and transaction-related expenses were $11.6 billion. In connection with the sale, the Company recorded a gain, net of transaction and other costs, of $5.2 billion ($4.0 billion after tax), subject to post-closing working capital and net debt adjustments, within income from discontinued operations, net of tax, in the consolidated statements of income. During the first quarter of fiscal 2019, the Company determined that its Power Solutions business met the criteria to be classified as a discontinued operation and, as a result, Power Solutions' historical financial results are reflected in the Company's consolidated financial statements as a discontinued operation. Refer to Note 3, "Discontinued Operations," of the notes to consolidated financial statements for further disclosure related to the Company's discontinued operations.

During fiscal 2019, the Company completed certain divestitures within the Global Products and Building Solutions EMEA/LA businesses. The combined selling price was $18 million, $16 million of which was received as of September 30, 2019. In connection with the sale, the Company reduced goodwill by $1 million within the Building Solutions EMEA/LA segment. The divestitures were not material to the Company's consolidated financial statements.

During fiscal 2019, the Company completed certain acquisitions for a combined purchase price of $32 million, $25 million of which was paid as of September 30, 2019. The acquisitions were not material to the Company's consolidated financial statements. In connection with the acquisitions, the Company recorded goodwill of $11 million within the Global Products segment, $8 million within the Building Solutions Asia Pacific segment, and $6 million within the Building Solutions EMEA/LA segment.

Fiscal Year 2018

During fiscal 2018, the Company completed certain acquisitions for a combined purchase price, net of cash acquired, of $21 million, all of which was paid as of September 30, 2018. The acquisitions in the aggregate were not material to the Company’s consolidated financial statements. In connection with the acquisitions, the Company recorded goodwill of $14 million within the Global Products segment and $1 million within the Building Solutions EMEA/LA segment.

In the first quarter of fiscal 2018, the Company completed the sale of its Scott Safety business to 3M Company. The selling price, net of cash divested, was $2.0 billion, all of which was received as of September 30, 2018. In connection with the sale, the Company recorded a pre-tax gain of $114 million within selling, general and administrative expenses in the consolidated statements of income and reduced goodwill in assets held for sale by $1.2 billion. The gain, net of tax, recorded was $84 million. Net cash proceeds from the transaction of approximately $1.9 billion were used to repay a significant portion of the Tyco International Holding S.a.r.L.'s ("TSarl") $4.0 billion of merger-related debt.

Also during fiscal 2018, the Company completed certain divestitures primarily within the Global Products business. The combined selling price was $204 million, all of which was received as of September 30, 2018. In connection with the divestitures, the Company reduced goodwill by $35 million. The divestitures were not material to the Company's consolidated financial statements.

Fiscal Year 2017

During fiscal 2017, the Company completed three acquisitions for a combined purchase price, net of cash acquired, of $9 million, $6 million of which was paid as of September 30, 2017. The acquisitions in the aggregate were not material to the Company’s consolidated financial statements. In connection with the acquisitions, the Company recorded goodwill of $2 million.

In the second quarter of fiscal 2017, the Company completed the sale of its ADT security business in South Africa within the Building Solutions EMEA/LA segment. The selling price, net of cash divested, was $129 million, all of which was received as of September 30, 2017. In connection with the sale, the Company reduced goodwill in assets held for sale by $92 million. The divestiture was not material to the Company's consolidated financial statements.

During fiscal 2017, the Company completed two divestitures for a combined selling price, net of cash divested, of $44 million, of which $40 million was received as of September 30, 2017. The divestitures were not material to the Company's consolidated financial statements. In connection with the divestitures, the Company reduced goodwill by $19 million and $2 million in the Global Products segment and in the Building Solutions Asia Pacific segment, respectively.

During fiscal 2017, the Company completed one additional divestiture for a sales price of $4 million, all of which was received as of September 30, 2017. The divestiture decreased the Company's ownership from a controlling to noncontrolling interest, and as a result, the Company deconsolidated cash of $5 million. The divestiture was not material to the Company's consolidated financial statements.

During fiscal 2017, the Company received $52 million in net cash proceeds related to prior year business divestitures and paid $75 million related to prior year business acquisitions.

3. DISCONTINUED OPERATIONS

Power Solutions

On November 13, 2018, the Company entered into a Stock and Asset Purchase Agreement ("Purchase Agreement") with BCP Acquisitions LLC ("Purchaser"). The Purchaser is a newly-formed entity controlled by investment funds managed by Brookfield Capital Partners LLC. Pursuant to the Purchase Agreement, on the terms and subject to the conditions therein, the Company agreed to sell, and Purchaser agreed to acquire, the Company's Power Solutions business for a purchase price of $13.2 billion. The transaction closed on April 30, 2019 with net cash proceeds of $11.6 billion after tax and transaction-related expenses.

During the first quarter of fiscal 2019, the Company determined that its Power Solutions business met the criteria to be classified as a discontinued operation and, as a result, Power Solutions' historical financial results are reflected in the Company's consolidated financial statements as a discontinued operation, and assets and liabilities were retrospectively reclassified as assets and liabilities held for sale. The Company did not allocate any general corporate overhead to discontinued operations.

The following table summarizes the results of Power Solutions reclassified as discontinued operations for the fiscal years ended September 30, 2019, 2018 and 2017 (in millions). As the Power Solutions sale occurred on April 30, 2019, there are only seven months of results included in the fiscal year ended September 30, 2019.

	Year Ended September 30,		
	2019	2018	2017
Net sales	$ 5,001	$ 8,000	$ 7,337
Income from discontinued operations before income taxes	6,039	1,355	1,407
Provision for income taxes on discontinued operations	(1,441)	(321)	(383)
Income from discontinued operations attributable to noncontrolling interests, net of tax	(24)	(47)	(42)
Income from discontinued operations	$ 4,574	$ 987	$ 982

For the fiscal year ended September 30, 2019, income from discontinued operations before income taxes included a gain on sale of the Power Solutions business, net of transaction and other costs, of $5.2 billion and a favorable impact of $117 million for ceasing depreciation and amortization expense as the business was held for sale.

For the fiscal year ended September 30, 2019, the effective tax rate was more than the Irish statutory rate of 12.5% primarily due to the tax impacts of the divestiture of the Power Solutions business and tax rate differentials. For the fiscal year ended September 30, 2018, the effective tax rate was more than the Irish statutory rate of 12.5% primarily due to legal entity restructuring associated with the Power Solutions business and tax rate differentials. For the fiscal year ended September 30, 2017, the effective tax rate was more than the Irish statutory rate of 12.5% primarily due to a tax expense due to changes in entity tax status, the establishment of a deferred tax liability on the outside basis difference of certain nonconsolidated subsidiaries and tax rate differentials.

Adient plc

On October 31, 2016, the Company completed the spin-off of its Automotive Experience business by way of the transfer of the Automotive Experience business from Johnson Controls to Adient plc. The Company did not retain any equity interest in Adient plc. During the first quarter of fiscal 2017, the Company determined that Adient met the criteria to be classified as a discontinued operation and, as a result, Adient's historical financial results are reflected in the Company's consolidated financial statements as a discontinued operation. The Company did not allocate any general corporate overhead to discontinued operations.

The following table summarizes the results of Adient, reclassified as discontinued operations for the fiscal year ended September 30, 2017 (in millions). As the Adient spin-off occurred on October 31, 2016, there is only one month of Adient results included in the year ended September 30, 2017.

	Year Ended September 30, 2017
Net sales	$ 1,434
Income from discontinued operations before income taxes	1
Provision for income taxes on discontinued operations	(35)
Income from discontinued operations attributable to noncontrolling interests, net of tax	(9)
Loss from discontinued operations	$ (43)

For the fiscal year ended September 30, 2017, the income from discontinued operations before income taxes included separation costs of $79 million.

For the fiscal year ended September 30, 2017, the effective tax rate was more than the Irish statutory rate of 12.5% primarily due to the tax impacts of separation costs and Adient spin-off related tax expense, partially offset by non-U.S. tax rate differentials.

Assets and Liabilities Held for Sale

The following table summarizes the carrying value of the Power Solutions assets and liabilities held for sale at September 30, 2018 (in millions):

	September 30, 2018
Cash	$ 15
Accounts receivable - net	1,443
Inventories	1,405
Other current assets	152
Assets held for sale	$ 3,015
Property, plant and equipment - net	$ 2,871
Goodwill	1,092
Other intangible assets - net	161
Investments in partially-owned affiliates	453
Other noncurrent assets	611
Noncurrent assets held for sale	$ 5,188
Short-term debt	$ 9
Current portion of long-term debt	25
Accounts payable	1,237
Accrued compensation and benefits	125
Other current liabilities	395
Liabilities held for sale	$ 1,791
Long-term debt	31
Pension and postretirement benefits	101
Other noncurrent liabilities	75
Noncurrent liabilities held for sale	$ 207

During the third quarter of fiscal 2019, the Company determined that a business within its Global Products segment met the criteria to be classified as held for sale. The assets and liabilities of this business are presented as held for sale in the consolidated statements of financial position as of September 30, 2019. Assets and liabilities held for sale are required to be recorded at the lower of carrying value or fair value less any costs to sell. Accordingly, the Company recorded an impairment charge of $235 million within restructuring and impairment costs in the consolidated statements of income in the third quarter of fiscal 2019 to write down the carrying value of the assets held for sale to fair value less any costs to sell. Refer to Note 17, "Impairment of Long-Lived Assets" of the notes to consolidated financial statements for further information regarding the impairment charge. The divestiture of the business held for sale could result in a gain or loss on sale to the extent the ultimate selling price differs from the current carrying value of the net assets recorded. The business did not meet the criteria to be classified as a discontinued operation as the divestiture of the business will not have a major effect on the Company's operations and financial results.

4. REVENUE RECOGNITION

Disaggregated Revenue

The following table presents the Company's revenues disaggregated by segment and by products and systems versus services revenue for the year ended September 30, 2019 (in millions):

	Year Ended September 30, 2019		
	Products & Systems	Services	Total
Building Solutions North America	$ 5,745	$ 3,286	$ 9,031
Building Solutions EMEA/LA	1,767	1,888	3,655
Building Solutions Asia Pacific	1,575	1,083	2,658
Global Products	8,624	—	8,624
Total	$ 17,711	$ 6,257	$ 23,968

The following table presents further disaggregation of Global Products segment revenues by product type for the year ended September 30, 2019 (in millions):

	Year Ended September 30, 2019
Building management systems	$ 1,292
HVAC & refrigeration equipment	6,181
Specialty products	1,151
Total	$ 8,624

Contract Balances

Contract assets relate to the Company’s right to consideration for performance obligations satisfied but not billed and consist of unbilled receivables and costs in excess of billings. Contract liabilities relate to customer payments received in advance of satisfaction of performance obligations under the contract. Contract liabilities consist of deferred revenue. Contract balances are classified as assets or liabilities on a contract-by-contract basis at the end of each reporting period.

The following table presents the location and amount of contract balances in the Company's consolidated statements of financial position (in millions):

	Location of contract balances	September 30, 2019	October 1, 2018
Contract assets - current	Accounts receivable - net	$ 1,389	$ 1,261
Contract assets - noncurrent	Other noncurrent assets	90	85
Contract liabilities - current	Deferred revenue	(1,407)	(1,335)
Contract liabilities - noncurrent	Other noncurrent liabilities	(117)	(113)
Total		$ (45)	$ (102)

For the year ended September 30, 2019, the Company recognized revenue of approximately $1.2 billion that was included in the beginning of period contract liability balance.

Performance Obligations

A performance obligation is a distinct good, service, or bundle of goods and services promised in a contract. A contract's transaction price is allocated to each distinct performance obligation and recognized as revenue when, or as, the performance obligation is satisfied. When contracts with customers require significant and complex integration, contain goods or services which are highly interdependent or interrelated, or are goods or services which significantly modify or customize other promises in the contracts and, therefore, are not distinct, then the entire contract is accounted for as a single performance obligation. For any contracts with multiple performance obligations, the contract's transaction price is allocated to each performance obligation based on the estimated relative standalone selling price of each distinct good or service in the contract. For product sales, each product sold to a customer typically represents a distinct performance obligation.

Performance obligations are satisfied as of a point in time or over time. The timing of satisfying the performance obligation is typically indicated by the terms of the contract. As of September 30, 2019, the aggregate amount of the transaction price allocated to remaining performance obligations was approximately $14.4 billion, of which approximately 60% is expected to be recognized as revenue over the next two years. The remaining performance obligations expected to be recognized in revenue beyond two years primarily relate to large, multi-purpose contracts to construct hospitals, schools and other governmental buildings, which include services to be performed over the building's lifetime, with initial contract terms of 25 to 35 years. Future contract modifications could affect both the timing and the amount of the remaining performance obligations. The Company excludes the value of remaining performance obligations for contracts with an original expected duration of one year or less.

Costs to Obtain or Fulfill a Contract

The Company recognizes the incremental costs incurred to obtain or fulfill a contract with a customer as an asset when these costs are recoverable. These costs consist primarily of sales commissions and bid/proposal costs. Costs to obtain or fulfill a contract are capitalized and amortized to revenue over the period of contract performance.

As of September 30, 2019, the Company recorded the costs to obtain or fulfill a contract of $212 million, of which $110 million is recorded within other current assets and $102 million is recorded within other noncurrent assets in the consolidated statements of financial position.

During the year ended September 30, 2019, the Company recognized amortization expense of $157 million related to costs to obtain or fulfill a contract. There were no impairment losses recognized in the year ended September 30, 2019.

5. INVENTORIES

Inventories consisted of the following (in millions):

	September 30, 2019	September 30, 2018
Raw materials and supplies	$ 588	$ 606
Work-in-process	176	155
Finished goods	1,050	1,058
Inventories	$ 1,814	$ 1,819

6. PROPERTY, PLANT AND EQUIPMENT

Property, plant and equipment consisted of the following (in millions):

	September 30, 2019	September 30, 2018
Buildings and improvements	$ 1,499	$ 1,213
Subscriber systems	661	573
Machinery and equipment	2,969	2,715
Construction in progress	465	704
Land	250	258
Total property, plant and equipment	5,844	5,463
Less: accumulated depreciation	(2,496)	(2,163)
Property, plant and equipment - net	$ 3,348	$ 3,300

Interest costs capitalized during the fiscal years ended September 30, 2019, 2018 and 2017 were $6 million, $17 million and $14 million, respectively.

7. GOODWILL AND OTHER INTANGIBLE ASSETS

The changes in the carrying amount of goodwill in each of the Company's reportable segments for the fiscal years ended September 30, 2019 and 2018 were as follows (in millions):

	September 30, 2017	Business Acquisitions	Business Divestitures	Currency Translation and Other	September 30, 2018
Building Solutions North America	$ 9,637	$ —	$ —	$ (34)	$ 9,603
Building Solutions EMEA/LA	2,012	1	—	(63)	1,950
Building Solutions Asia Pacific	1,255	—	—	(20)	1,235
Global Products	5,687	14	(35)	(73)	5,593
Total	$ 18,591	$ 15	$ (35)	$ (190)	$ 18,381

	September 30, 2018	Business Acquisitions	Business Divestitures	Currency Translation and Other	September 30, 2019
Building Solutions North America	$ 9,603	$ —	$ —	$ (15)	$ 9,588
Building Solutions EMEA/LA	1,950	6	(1)	(106)	1,849
Building Solutions Asia Pacific	1,235	8	—	(49)	1,194
Global Products	5,593	11	(22)	(35)	5,547
Total	$ 18,381	$ 25	$ (23)	$ (205)	$ 18,178

The fiscal 2019 Global Products business divestiture amount includes $22 million of goodwill transferred to noncurrent assets held for sale on the consolidated statements of financial position related to plans to dispose of a business within the Global Products segment.

At September 30, 2017, accumulated goodwill impairment charges included $47 million related to the Building Solutions EMEA/LA - Latin America reporting unit.

There were no goodwill impairments resulting from fiscal 2019 and 2018 annual impairment tests. No reporting unit was determined to be at risk of failing step one of the goodwill impairment test. The Company continuously monitors for events and circumstances that could negatively impact the key assumptions in determining fair value, including long-term revenue growth projections, profitability, discount rates, recent market valuations from transactions by comparable companies, volatility in the Company's market capitalization, and general industry, market and macro-economic conditions. It is possible that future changes in such circumstances, or in the variables associated with the judgments, assumptions and estimates used in assessing the fair value of the reporting unit, would require the Company to record a non-cash impairment charge.

The assumptions included in the impairment tests require judgment, and changes to these inputs could impact the results of the calculations. The primary assumptions used in the impairment tests were management's projections of future cash flows. Although the Company's cash flow forecasts are based on assumptions that are considered reasonable by management and consistent with the plans and estimates management is using to operate the underlying businesses, there are significant judgments in determining the expected future cash flows attributable to a reporting unit.

The Company’s other intangible assets, primarily from business acquisitions valued based on independent appraisals, consisted of (in millions):

	September 30, 2019			September 30, 2018		
	Gross Carrying Amount	Accumulated Amortization	Net	Gross Carrying Amount	Accumulated Amortization	Net
Amortized intangible assets						
Technology	$ 1,307	$ (370)	$ 937	$ 1,317	$ (251)	$ 1,066
Customer relationships	2,722	(759)	1,963	2,941	(599)	2,342
Miscellaneous	584	(224)	360	458	(185)	273
Total amortized intangible assets	4,613	(1,353)	3,260	4,716	(1,035)	3,681
Unamortized intangible assets						
Trademarks/tradenames	2,282	—	2,282	2,386	—	2,386
Miscellaneous	90	—	90	120	—	120
	2,372	—	2,372	2,506	—	2,506
Total intangible assets	$ 6,985	$ (1,353)	$ 5,632	$ 7,222	$ (1,035)	$ 6,187

Amortization of other intangible assets included within continuing operations for the fiscal years ended September 30, 2019, 2018 and 2017 was $377 million, $376 million and $481 million, respectively. Excluding the impact of any future acquisitions, the Company anticipates amortization for fiscal 2020, 2021, 2022, 2023 and 2024 will be approximately $390 million, $389 million, $387 million, $374 million and $361 million, respectively. There were no indefinite-lived intangible asset impairments resulting from fiscal 2019, 2018 and 2017 annual impairment tests.

8. LEASES

Certain administrative, production and other facilities and equipment are leased under arrangements that are accounted for as operating leases. Most leases contain renewal options for varying periods, and leases generally require the Company to pay for insurance, taxes and maintenance of the property.

Total rental expense for continuing operations for the fiscal years ended September 30, 2019, 2018 and 2017 was $452 million, $408 million and $432 million, respectively.

Future minimum operating lease payments at September 30, 2019 were as follows (in millions):

	September 30, 2019
2020	$ 352
2021	287
2022	200
2023	111
2024	71
After 2024	172
Total minimum lease payments	$ 1,193

9. DEBT AND FINANCING ARRANGEMENTS

Short-term debt consisted of the following (in millions):

	September 30,	
	2019	2018
Bank borrowings and commercial paper	$ 10	$ 1,306
Weighted average interest rate on short-term debt outstanding	2.0%	2.8%

The Company had no commercial paper outstanding as of September 30, 2019 and $879 million as of September 30, 2018.

In June 2019, TSarl, a subsidiary of the Company, terminated its $1.25 billion committed revolving credit facility scheduled to expire in August 2020. In connection with the termination, the Company repaid all of the outstanding obligations in respect of principal, interest and fees under the credit facility. In relation to the termination of the credit facility, TSarl completed all of its obligations under the Term Loan Credit Agreement, dated as of March 10, 2016 (the "Term Facility") by repaying all of the outstanding obligations under the Term Facility, which included $364 million term loan scheduled to mature in March 2020. Other debt held at TSarl was also repaid, including a 364-day $250 million floating rate term loan scheduled to mature in March 2020 and an 18-month 215 million euro floating rate euro term loan scheduled to mature in July 2019. No amounts remain outstanding on the $4.0 billion TSarl merger-related debt as of September 30, 2019.

In March 2019, a 364-day $250 million committed revolving credit facility expired. The Company entered into a new $250 million committed revolving credit facility scheduled to expire in March 2020. As of September 30, 2019 there were no draws on the facility.

In February 2019, a 364-day $150 million committed revolving credit facility expired. The Company entered into a new $150 million committed revolving credit facility scheduled to expire in February 2020. As of September 30, 2019 there were no draws on the facility.

In February 2019, a 364-day $150 million committed revolving credit facility expired. The Company entered into a new $150 million committed revolving credit facility scheduled to expire in February 2020. As of September 30, 2019 there were no draws on the facility.

In January 2019, the Company entered into a $750 million term loan due the earlier of January 2020 or five business days from the closing on the sale of the Power Solutions business. Proceeds from the term loan were used for general corporate purposes. Following the sale of the Power Solutions business, the loan was repaid in May 2019.

In January 2019, a 364-day $200 million committed revolving credit facility expired. The Company entered into a new $350 million committed revolving credit facility scheduled to expire in January 2020. Following the sale of the Power Solutions business, the facility was reduced to $200 million. As of September 30, 2019 there were no draws on the facility.

Long-term debt consisted of the following (in millions; due dates by fiscal year):

	September 30, 2019	September 30, 2018
Unsecured notes		
JCI plc - 5.00% due in 2020 ($453 million par value)	453	452
JCI Inc. - 5.00% due in 2020 ($47 million par value)	47	47
JCI plc - 0.00% due in 2021 (€750 million par value)	818	868
JCI plc - 4.25% due in 2021 ($204 million par value)	204	446
JCI Inc. - 4.25% due in 2021 ($53 million par value)	53	53
JCI plc - 3.75% due in 2022 ($171 million par value)	171	427
JCI Inc. - 3.75% due in 2022 ($22 million par value)	22	22
JCI plc - 4.625% due in 2023 ($25 million par value)	26	37
Tyco International Finance S.A. ("TIFSA") - 4.625% due in 2023 ($7 million par value)	7	8
JCI plc - 1.00% due in 2023 (€888 million par value)	967	1,154
JCI plc - 3.625% due in 2024 ($453 million par value)	453	468
JCI Inc. - 3.625% due in 2024 ($31 million par value)	31	31
JCI plc - 1.375% due in 2025 (€423 million par value)	471	501
TIFSA - 1.375% due in 2025 (€54 million par value)	60	69
JCI plc - 3.90% due in 2026 ($487 million par value)	521	755
TIFSA - 3.90% due in 2026 ($51 million par value)	51	52
JCI plc - 6.00% due in 2036 ($342 million par value)	339	388
JCI Inc. - 6.00% due in 2036 ($8 million par value)	8	8
JCI plc - 5.70% due in 2041 ($190 million par value)	189	269
JCI Inc. - 5.70% due in 2041 ($30 million par value)	30	30
JCI plc - 5.25% due in 2042 ($155 million par value)	155	242
JCI Inc. - 5.25% due in 2042 ($6 million par value)	6	8
JCI plc - 4.625% due in 2044 ($444 million par value)	441	441
JCI Inc. - 4.625% due in 2044 ($6 million par value)	6	6
JCI plc - 5.125% due in 2045 ($477 million par value)	567	867
TIFSA - 5.125% due in 2045 ($23 million par value)	22	23
JCI plc - 6.95% due in 2046 ($32 million par value)	32	121
JCI Inc. - 6.95% due in 2046 ($4 million par value)	4	4
JCI plc - 4.50% due in 2047 ($500 million par value)	496	496
JCI plc - 4.95% due in 2064 ($341 million par value)	340	434
JCI Inc. - 4.95% due in 2064 ($15 million par value)	15	15
TSarl - Term Loan A - LIBOR plus 1.25% due in 2020	—	364
TSarl - Term Loan B - €215 million; EURIBOR plus 0.62% due in 2020	—	250
JCI plc - Term Loan - 25 billion yen; LIBOR JPY plus 0.40% due in 2022	232	309
Other	3	3
Gross long-term debt	7,240	9,668
Less: current portion	501	1
Less: debt issuance costs	31	44
Net long-term debt	$ 6,708	$ 9,623

The installments of long-term debt maturing in subsequent fiscal years are: 2020 - $501 million; 2021 - $1,075 million; 2022 - $425 million; 2023 - $1,001 million; 2024 - $485 million; 2025 and thereafter - $3,753 million. The Company’s long-term debt includes various financial covenants, none of which are expected to restrict future operations.

Total interest paid on both short and long-term debt for continuing operations for the fiscal years ended September 30, 2019, 2018 and 2017 was $369 million, $401 million and $432 million, respectively.

Financing Arrangements

In June 2019, the Company repurchased at par, $2.5 million of its 5.25% fixed rate notes, plus accrued interest, scheduled to mature in 2041.

In May 2019, the Company completed the debt tender offer to purchase up to $1.5 billion in aggregate principal amount of certain of its outstanding notes for $1.6 billion total consideration. The Company recognized a loss on the extinguishment of debt of $60 million, which was recorded within net financing charges in the consolidated statements of income.

In May 2019, the Company repaid 10 billion yen of the 35 billion yen five-year syndicated floating rate term loan, plus accrued interest, scheduled to mature in September 2022.

In April 2019, the Company repurchased at a discount, 4.7 million euro of its 1.375% fixed rate euro notes, plus accrued interest, scheduled to mature in 2025.

In February 2019, the Company repurchased at a discount, $12 million of its 3.9% fixed rate notes, plus accrued interest, scheduled to mature in 2026.

Net Financing Charges

The Company's net financing charges line item in the consolidated statements of income for the years ended September 30, 2019, 2018 and 2017 contained the following components (in millions):

	Year Ended September 30,		
	2019	2018	2017
Interest expense, net of capitalized interest costs	$ 335	$ 409	$ 446
Banking fees and bond cost amortization	28	30	49
Loss on debt extinguishment	60	—	—
Interest income	(61)	(13)	(11)
Net foreign exchange results for financing activities	(12)	(25)	(18)
Net financing charges	$ 350	$ 401	$ 466

10. DERIVATIVE INSTRUMENTS AND HEDGING ACTIVITIES

The Company selectively uses derivative instruments to reduce market risk associated with changes in foreign currency, commodities, stock-based compensation liabilities and interest rates. Under Company policy, the use of derivatives is restricted to those intended for hedging purposes; the use of any derivative instrument for speculative purposes is strictly prohibited. A description of each type of derivative utilized by the Company to manage risk is included in the following paragraphs. In addition, refer to Note 11, "Fair Value Measurements," of the notes to consolidated financial statements for information related to the fair value measurements and valuation methods utilized by the Company for each derivative type.

Cash Flow Hedges

The Company has global operations and participates in the foreign exchange markets to minimize its risk of loss from fluctuations in foreign currency exchange rates. The Company selectively hedges anticipated transactions that are subject to foreign exchange rate risk primarily using foreign currency exchange hedge contracts. The Company hedges 70% to 90% of the nominal amount of each of its known foreign exchange transactional exposures. As cash flow hedges under ASC 815, "Derivatives and Hedging," the hedge gains or losses due to changes in fair value are initially recorded as a component of AOCI and are subsequently reclassified into earnings when the hedged transactions occur and affect earnings. These contracts were highly effective in hedging the variability in future cash flows attributable to changes in currency exchange rates at September 30, 2019 and 2018.

The Company selectively hedges anticipated transactions that are subject to commodity price risk, primarily using commodity hedge contracts, to minimize overall price risk associated with the Company’s purchases of copper and aluminum in cases where commodity price risk cannot be naturally offset or hedged through supply base fixed price contracts. Prior to the divestiture of Power Solutions, the Company also used commodity hedge contracts to minimize risk associated with purchases of lead, polypropylene and tin. Commodity risks are systematically managed pursuant to policy guidelines. As cash flow hedges, hedge gains or losses due to changes in fair value are initially recorded as a component of AOCI and are subsequently reclassified into earnings when the hedged transactions occur and affect earnings. The maturities of the commodity hedge contracts coincide with the expected purchase of the commodities. These contracts were highly effective in hedging the variability in future cash flows attributable to changes in commodity prices at September 30, 2019 and 2018.

The Company had the following outstanding contracts to hedge forecasted commodity purchases for continuing and discontinued operations (in metric tons):

	Volume Outstanding as of	
Commodity	September 30, 2019	September 30, 2018
Copper	3,561	3,175
Aluminum	2,967	3,381
Lead	—	49,066
Polypropylene	—	15,868
Tin	—	3,076

Net Investment Hedges

The Company enters into foreign currency denominated debt obligations to selectively hedge portions of its net investment in non-U.S. subsidiaries. The currency effects of the debt obligations are reflected in the AOCI account within shareholders' equity attributable to Johnson Controls ordinary shareholders where they offset currency gains and losses recorded on the Company's net investments globally. At September 30, 2019, the Company had 888 million euro, 750 million euro, 423 million euro and 54 million euro in bonds designated as net investment hedges in the Company's net investment in Europe and 25 billion yen of foreign denominated debt designated as net investment hedge in the Company's net investment in Japan. At September 30, 2018, the Company had one billion euro, 750 million euro, 423 million euro and 58 million euro in bonds and a 215 million euro term loan designated as net investment hedges in the Company's net investment in Europe and 35 billion yen of foreign denominated debt designated as net investment hedge in the Company's net investment in Japan.

Derivatives Not Designated as Hedging Instruments

The Company selectively uses equity swaps to reduce market risk associated with certain of its stock-based compensation plans, such as its deferred compensation plans. These equity compensation liabilities increase as the Company's stock price increases and decrease as the Company's stock price decreases. In contrast, the value of the swap agreement moves in the opposite direction of these liabilities, allowing the Company to fix a portion of the liabilities at a stated amount. As of September 30, 2019, the Company hedged approximately 1.4 million of its ordinary shares, which have a cost basis of $60 million. As of September 30, 2018 the Company hedged approximately 1.8 million of its ordinary shares, which have a cost basis of $73 million.

The Company also holds certain foreign currency forward contracts which do not qualify for hedge accounting treatment. The change in fair value of foreign currency exchange derivatives not designated as hedging instruments under ASC 815 are recorded in the consolidated statements of income.

Fair Value of Derivative Instruments

The following table presents the location and fair values of derivative instruments and hedging activities included in the Company's consolidated statements of financial position (in millions):

	Derivatives and Hedging Activities Designated as Hedging Instruments under ASC 815		Derivatives and Hedging Activities Not Designated as Hedging Instruments under ASC 815	
	September 30, 2019	September 30, 2018	September 30, 2019	September 30, 2018
Other current assets				
Foreign currency exchange derivatives	$ 16	$ 6	$ 19	$ 10
Commodity derivatives	—	1	—	—
Other noncurrent assets				
Equity swap	—	—	62	63
Total assets	$ 16	$ 7	$ 81	$ 73
Other current liabilities				
Foreign currency exchange derivatives	$ 23	$ 10	$ —	$ 2
Commodity derivatives	1	2	—	—
Liability held for sale				
Commodity derivatives	—	12	—	—
Long-term debt				
Foreign currency denominated debt	2,544	3,149	—	—
Total liabilities	$ 2,568	$ 3,173	$ —	$ 2

Counterparty Credit Risk

The use of derivative financial instruments exposes the Company to counterparty credit risk. The Company has established policies and procedures to limit the potential for counterparty credit risk, including establishing limits for credit exposure and continually assessing the creditworthiness of counterparties. As a matter of practice, the Company deals with major banks worldwide having strong investment grade long-term credit ratings. To further reduce the risk of loss, the Company generally enters into International Swaps and Derivatives Association ("ISDA") master netting agreements with substantially all of its counterparties. The Company's derivative contracts do not contain any credit risk related contingent features and do not require collateral or other security to be furnished by the Company or the counterparties. The Company's exposure to credit risk associated with its derivative instruments is measured on an individual counterparty basis, as well as by groups of counterparties that share similar attributes. The Company does not anticipate any non-performance by any of its counterparties, and the concentration of risk with financial institutions does not present significant credit risk to the Company.

The Company enters into ISDA master netting agreements with counterparties that permit the net settlement of amounts owed under the derivative contracts. The master netting agreements generally provide for net settlement of all outstanding contracts with a counterparty in the case of an event of default or a termination event. The Company has not elected to offset the fair value positions of the derivative contracts recorded in the consolidated statements of financial position. Collateral is generally not required of the Company or the counterparties under the master netting agreements. As of September 30, 2019 and 2018, no cash collateral was received or pledged under the master netting agreements.

The gross and net amounts of derivative assets and liabilities were as follows (in millions):

	Fair Value of Assets		Fair Value of Liabilities	
	September 30, 2019	September 30, 2018	September 30, 2019	September 30, 2018
Gross amount recognized	$ 97	$ 80	$ 2,568	$ 3,175
Gross amount eligible for offsetting	(11)	(12)	(11)	(12)
Net amount	$ 86	$ 68	$ 2,557	$ 3,163

Derivatives Impact on the Statements of Income and Statements of Comprehensive Income

The following table presents the pre-tax gains (losses) recorded in other comprehensive income (loss) related to cash flow hedges for the fiscal years ended September 30, 2019, 2018 and 2017 (in millions):

Derivatives in ASC 815 Cash Flow Hedging Relationships	Year Ended September 30, 2019	2018	2017
Foreign currency exchange derivatives	$ 2	$ 2	$ (1)
Commodity derivatives	(4)	(14)	14
Total	$ (2)	$ (12)	$ 13

The following table presents the location and amount of the pre-tax gains (losses) on cash flow hedges reclassified from AOCI into the Company's consolidated statements of income for the fiscal years ended September 30, 2019, 2018 and 2017 (in millions):

Derivatives in ASC 815 Cash Flow Hedging Relationships	Location of Gain (Loss) Recognized in Income on Derivative	Year Ended September 30, 2019	2018	2017
Foreign currency exchange derivatives	Cost of sales	$ 4	$ 2	$ (1)
Foreign currency exchange derivatives	Income from discontinued operations	—	2	26
Commodity derivatives	Cost of sales	(4)	5	4
Commodity derivatives	Income from discontinued operations	(10)	7	4
Total		$ (10)	$ 16	$ 33

The following table presents the location and amount of pre-tax gains (losses) on derivatives not designated as hedging instruments recognized in the Company's consolidated statements of income for the fiscal years ended September 30, 2019, 2018 and 2017 (in millions):

Derivatives Not Designated as Hedging Instruments under ASC 815	Location of Gain (Loss) Recognized in Income on Derivative	Year Ended September 30, 2019	2018	2017
Foreign currency exchange derivatives	Cost of sales	$ (8)	$ 4	$ (1)
Foreign currency exchange derivatives	Net financing charges	(60)	42	48
Foreign currency exchange derivatives	Income tax provision	(1)	(4)	(1)
Foreign currency exchange derivatives	Income from discontinued operations	52	(7)	(1)
Equity swap	Selling, general and administrative	14	(8)	(3)
Total		$ (3)	$ 27	$ 42

The pre-tax gains (losses) recorded in foreign currency translation adjustment ("CTA") within other comprehensive income (loss) related to net investment hedges were $145 million, $45 million and $(138) million for the years ended September 30, 2019, 2018 and 2017, respectively. For the years ended September 30, 2019, 2018 and 2017, no gains or losses were reclassified from CTA into income for the Company's outstanding net investment hedges.

11. FAIR VALUE MEASUREMENTS

ASC 820, "Fair Value Measurement," defines fair value as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. ASC 820 also establishes a three-level fair value hierarchy that prioritizes information used in developing assumptions when pricing an asset or liability as follows:

Level 1: Observable inputs such as quoted prices in active markets for identical assets or liabilities;

Level 2: Quoted prices in active markets for similar assets or liabilities, quoted prices for identical or similar assets or liabilities in markets that are not active, or inputs, other than quoted prices in active markets, that are observable either directly or indirectly; and

Level 3: Unobservable inputs where there is little or no market data, which requires the reporting entity to develop its own assumptions.

ASC 820 requires the use of observable market data, when available, in making fair value measurements. When inputs used to measure fair value fall within different levels of the hierarchy, the level within which the fair value measurement is categorized is based on the lowest level input that is significant to the fair value measurement.

Recurring Fair Value Measurements

The following tables present the Company's fair value hierarchy for those assets and liabilities measured at fair value as of September 30, 2019 and 2018 (in millions):

		Fair Value Measurements Using:		
	Total as of September 30, 2019	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Other current assets				
Foreign currency exchange derivatives	$ 35	$ —	$ 35	$ —
Exchange traded funds (fixed income)[1]	19	19	—	—
Other noncurrent assets				
Deferred compensation plan assets	71	71	—	—
Exchange traded funds (fixed income)[1]	138	138	—	—
Exchange traded funds (equity)[1]	116	116	—	—
Equity swap	62	—	62	—
Total assets	$ 441	$ 344	$ 97	$ —
Other current liabilities				
Foreign currency exchange derivatives	$ 23	$ —	$ 23	$ —
Commodity derivatives	1	—	1	—
Total liabilities	$ 24	$ —	$ 24	$ —

	Total as of September 30, 2018	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
	Fair Value Measurements Using:			
Other current assets				
Foreign currency exchange derivatives	$ 16	$ —	$ 16	$ —
Commodity derivatives	1	—	1	—
Exchange traded funds (fixed income)[1]	14	14	—	—
Other noncurrent assets				
Deferred compensation plan assets	100	100	—	—
Exchange traded funds (fixed income)[1]	148	148	—	—
Exchange traded funds (equity)[1]	119	119	—	—
Equity swap	63	—	63	—
Noncurrent assets held for sale				
Investments in marketable common stock	3	3	—	—
Total assets	$ 464	$ 384	$ 80	$ —
Other current liabilities				
Foreign currency exchange derivatives	$ 12	$ —	$ 12	$ —
Commodity derivatives	2	—	2	—
Liabilities held for sale				
Commodity derivatives	12	—	12	—
Total liabilities	$ 26	$ —	$ 26	$ —

[1]Classified as restricted investments for payment of asbestos liabilities. See Note 22, "Commitments and Contingencies" of the notes to consolidated financial statements for further details.

Valuation Methods

Foreign currency exchange derivatives: The foreign currency exchange derivatives are valued under a market approach using publicized spot and forward prices.

Commodity derivatives: The commodity derivatives are valued under a market approach using publicized prices, where available, or dealer quotes.

Equity swaps: The equity swaps are valued under a market approach as the fair value of the swaps is equal to the Company's stock price at the reporting period date.

Deferred compensation plan assets: Assets held in the deferred compensation plans will be used to pay benefits under certain of the Company's non-qualified deferred compensation plans. The investments primarily consist of mutual funds which are publicly traded on stock exchanges and are valued using a market approach based on the quoted market prices.

Exchange traded funds: Exchange traded funds are valued using a market approach based on the quoted market prices, where available, or broker/dealer quotes of identical or comparable instruments. During the fiscal year ended September 30, 2019, the Company recognized unrealized gains of $12 million in the consolidated statements of income on these investments that were still held as of September 30, 2019, all of which related to restricted investments. Refer to Note 22, "Commitments and Contingencies," of the notes to consolidated financial statements for further information.

The fair values of cash and cash equivalents, accounts receivable, short-term debt and accounts payable approximate their carrying values. The fair value of long-term debt was $7.6 billion and $9.6 billion at September 30, 2019 and 2018, respectively. The fair value of public debt was $7.4 billion and $8.6 billion at September 30, 2019 and 2018, respectively, which was determined primarily using market quotes classified as Level 1 inputs within the ASC 820 fair value hierarchy. The fair value of other long-term debt was $0.2 billion and $1.0 billion at September 30, 2019 and 2018 respectively, which was determined based on quoted market prices for similar instruments classified as Level 2 inputs within the ASC 820 fair value hierarchy.

12. STOCK-BASED COMPENSATION

On September 2, 2016, the shareholders of the Company approved amendments to the Johnson Controls International plc 2012 Share and Incentive Plan (the "Plan"). The types of awards authorized by the Plan comprise of stock options, stock appreciation rights, performance shares, performance units and other stock-based awards. The Compensation Committee of the Company's Board of Directors determines the types of awards to be granted to individual participants and the terms and conditions of the awards. The Plan provides that 76 million shares of the Company's common stock are reserved for issuance under the 2012 Plan, and 34 million shares remain available for issuance at September 30, 2019.

The Company has four share-based compensation plans, which are described below. For the fiscal years ended September 30, 2019, 2018 and 2017, compensation cost charged against income for continuing operations, excluding the offsetting impact of outstanding equity swaps, for those plans was approximately $103 million, $89 million and $122 million, respectively, all of which was recorded in selling, general and administrative expenses.

The Company has elected to utilize the alternative transition method for calculating the tax effects of stock-based compensation. The total income tax benefit recognized for continuing operations in the consolidated statements of income for share-based compensation arrangements was approximately $26 million, $22 million and $48 million for the fiscal years ended September 30, 2019, 2018 and 2017, respectively. The tax expense from the exercise and vesting of equity settled awards was $6 million and $3 million for the fiscal years ended September 30, 2019 and 2018, respectively, and recorded as part of the income tax provision upon adoption of ASU 2016-09 during the first quarter of fiscal 2018. The tax benefit from the exercise and vesting of equity settled awards was $4 million for the fiscal year ended September 30, 2017, and was recorded in capital in excess of par value. The Company does not settle stock options granted under share-based payment arrangements to cash.

Stock Options

Stock options are granted with an exercise price equal to the market price of the Company's stock at the date of grant. Stock option awards typically vest between two and three years after the grant date and expire ten years from the grant date.

The fair value of each option is estimated on the date of grant using a Black-Scholes option valuation model that uses the assumptions noted in the following table. The expected life of options represents the period of time that options granted are expected to be outstanding, assessed separately for executives and non-executives. The risk-free interest rate for periods during the contractual life of the option is based on the U.S. Treasury yield curve in effect at the time of grant. For fiscal 2019 and 2018, the expected volatility is based on the historical volatility of the Company's stock since October 2016 blended with the historical volatility of certain peer companies' stock prior to October 2016 over the most recent period corresponding to the expected life as of the grant date. For fiscal 2017, the expected volatility is based on historical volatility of certain peer companies over the most recent period corresponding to the expected life as of the grant date. The expected dividend yield is based on the expected annual dividend as a percentage of the market value of the Company's ordinary shares as of the grant date. The Company uses historical data to estimate option exercises and employee terminations within the valuation model.

	Year Ended September 30,		
	2019	2018	2017
Expected life of option (years)	6.4	6.5	4.75 & 6.5
Risk-free interest rate	2.77%	2.28%	1.23% - 1.93%
Expected volatility of the Company's stock	21.80%	23.70%	24.60%
Expected dividend yield on the Company's stock	3.29%	2.78%	2.21%

A summary of stock option activity at September 30, 2019, and changes for the year then ended, is presented below:

	Weighted Average Option Price	Shares Subject to Option	Weighted Average Remaining Contractual Life (years)	Aggregate Intrinsic Value (in millions)
Outstanding, September 30, 2018	$ 34.24	17,836,062		
Granted	33.37	1,741,510		
Exercised	27.54	(6,234,755)		
Forfeited or expired	37.49	(973,068)		
Outstanding, September 30, 2019	$ 35.07	12,369,749	4.6	$ 111
Exercisable, September 30, 2019	$ 34.74	9,295,813	3.4	$ 87

The weighted-average grant-date fair value of options granted during the fiscal years ended September 30, 2019, 2018 and 2017 was $5.56, $7.04 and $7.81, respectively.

The total intrinsic value of options exercised during the fiscal years ended September 30, 2019, 2018 and 2017 was approximately $73 million, $38 million and $81 million, respectively.

In conjunction with the exercise of stock options granted, the Company received cash payments for the fiscal years ended September 30, 2019, 2018 and 2017 of approximately $171 million, $66 million and $157 million, respectively.

At September 30, 2019, the Company had approximately $8 million of total unrecognized compensation cost related to nonvested stock options granted for continuing operations. That cost is expected to be recognized over a weighted-average period of 1.8 years.

Stock Appreciation Rights ("SARs")

SARs vest under the same terms and conditions as stock option awards; however, they are settled in cash for the difference between the market price on the date of exercise and the exercise price. As a result, SARs are recorded in the Company's consolidated statements of financial position as a liability until the date of exercise.

The fair value of each SAR award is estimated using a similar method described for stock options. The fair value of each SAR award is recalculated at the end of each reporting period and the liability and expense are adjusted based on the new fair value.

The assumptions used to determine the fair value of the SAR awards at September 30, 2019 were as follows:

Expected life of SAR (years)	0.4 - 3.5
Risk-free interest rate	1.55% - 1.85%
Expected volatility of the Company's stock	21.80%
Expected dividend yield on the Company's stock	3.29%

A summary of SAR activity at September 30, 2019, and changes for the year then ended, is presented below:

	Weighted Average SAR Price	Shares Subject to SAR	Weighted Average Remaining Contractual Life (years)	Aggregate Intrinsic Value (in millions)
Outstanding, September 30, 2018	$ 27.39	626,701		
Exercised	25.20	(245,513)		
Forfeited or expired	32.43	(13,179)		
Outstanding, September 30, 2019	$ 28.67	368,009	2.4	$ 6
Exercisable, September 30, 2019	$ 28.59	365,829	2.4	$ 6

In conjunction with the exercise of SARs granted, the Company made payments of $3 million, $3 million and $4 million during the fiscal years ended September 30, 2019, 2018 and 2017, respectively.

Restricted (Nonvested) Stock / Units

The Plan provides for the award of restricted stock or restricted stock units to certain employees. These awards are typically share settled unless the employee is a non-U.S. employee or elects to defer settlement until retirement at which point the award would be settled in cash. Restricted awards typically vest over a period of three years from the grant date. The Plan allows for different vesting terms on specific grants with approval by the Board of Directors. The fair value of each share-settled restricted award is based on the closing market value of the Company's ordinary shares on the date of grant. The fair value of each cash-settled restricted award is recalculated at the end of each reporting period based on the closing market value of the Company's ordinary shares at the end of the reporting period, and the liability and expense are adjusted based on the new fair value.

A summary of the status of the Company's nonvested restricted stock awards at September 30, 2019, and changes for the fiscal year then ended, is presented below:

	Weighted Average Price	Shares/Units Subject to Restriction
Nonvested, September 30, 2018	$ 45.14	5,001,517
Granted	33.88	2,384,747
Vested	41.23	(3,139,142)
Forfeited	37.83	(914,046)
Nonvested, September 30, 2019	$ 35.98	3,333,076

At September 30, 2019, the Company had approximately $72 million of total unrecognized compensation cost related to nonvested restricted stock arrangements granted for continuing operations. That cost is expected to be recognized over a weighted-average period of 2.1 years.

Performance Share Awards

The Plan permits the grant of performance-based share unit ("PSU") awards. The PSUs are generally contingent on the achievement of pre-determined performance goals over a performance period of three years as well as on the award holder's continuous employment until the vesting date. The PSUs are also indexed to the achievement of specified levels of total shareholder return versus a peer group over the performance period. Each PSU that is earned will be settled with shares of the Company's ordinary shares following the completion of the performance period, unless the award holder elected to defer a portion or all of the award until retirement which would then be settled in cash.

The fair value of each PSU is estimated on the date of grant with the use of a Monte Carlo simulation that uses the assumptions noted in the following table. The risk-free interest rate for periods during the contractual life of the PSU is based on the U.S. Treasury yield curve in effect at the time of grant. For fiscal 2019, 2018 and 2017, the expected volatility is based on the historical volatility of the Company's stock since October 2016 blended with the historical volatility of certain peer companies' stock prior to October 2016 over the most recent three-year period as of the grant date.

	Year Ended September 30,		
	2019	2018	2017
Risk-free interest rate	2.76%	1.92%	1.40%
Expected volatility of the Company's stock	22.90%	21.70%	21.00%

A summary of the status of the Company's nonvested PSUs at September 30, 2019, and changes for the fiscal year then ended, is presented below:

	Weighted Average Price	Shares/Units Subject to PSU
Nonvested, September 30, 2018	$ 41.07	1,412,290
Granted	36.28	595,594
Forfeited	37.89	(182,365)
Nonvested, September 30, 2019	$ 39.82	1,825,519

At September 30, 2019, the Company had approximately $31 million of total unrecognized compensation cost related to nonvested performance-based share unit awards granted for continuing operations. That cost is expected to be recognized over a weighted-average period of 1.8 years.

13. EARNINGS PER SHARE

The Company presents both basic and diluted EPS amounts. Basic EPS is calculated by dividing net income attributable to Johnson Controls by the weighted average number of ordinary shares outstanding during the reporting period. Diluted EPS is calculated by dividing net income attributable to Johnson Controls by the weighted average number of ordinary shares and ordinary equivalent shares outstanding during the reporting period that are calculated using the treasury stock method for stock options, unvested restricted stock and unvested performance share awards. The treasury stock method assumes that the Company uses the proceeds from the exercise of stock option awards to repurchase ordinary shares at the average market price during the period. The assumed proceeds under the treasury stock method include the purchase price that the grantee will pay in the future and compensation cost for future service that the Company has not yet recognized. For unvested restricted stock and unvested performance share awards, assumed proceeds under the treasury stock method would include unamortized compensation cost.

The following table reconciles the numerators and denominators used to calculate basic and diluted earnings per share (in millions):

	Year Ended September 30,		
	2019	2018	2017
Income Available to Ordinary Shareholders			
Income from continuing operations	$ 1,100	$ 1,175	$ 672
Income from discontinued operations	4,574	987	939
Basic and diluted income available to shareholders	$ 5,674	$ 2,162	$ 1,611
Weighted Average Shares Outstanding			
Basic weighted average shares outstanding	870.2	925.7	935.3
Effect of dilutive securities:			
Stock options, unvested restricted stock and unvested performance share awards	4.1	6.0	9.3
Diluted weighted average shares outstanding	874.3	931.7	944.6
Antidilutive Securities			
Options to purchase shares	1.4	1.5	0.2

14. EQUITY AND NONCONTROLLING INTERESTS

Dividends

The authority to declare and pay dividends is vested in the Board of Directors. The timing, declaration and payment of future dividends to holders of the Company's ordinary shares is determined by the Company's Board of Directors and depends upon many factors, including the Company's financial condition and results of operations, the capital requirements of the Company's businesses, industry practice and any other relevant factors.

Under Irish law, dividends may only be paid (and share repurchases and redemptions must generally be funded) out of "distributable reserves." The creation of distributable reserves was accomplished by way of a capital reduction, which the Irish High Court approved on December 18, 2014 and as acquired in conjunction with the Merger.

Share Repurchase Program

In November 2018, the Company's Board of Directors approved a $1 billion increase to its existing share repurchase authorization. In March 2019, the Company's Board of Directors approved an additional $8.5 billion increase to its existing share repurchase authorization, subject to the completion of the previously announced sale of the Company's Power Solutions business, which closed on April 30, 2019. The share repurchase program does not have an expiration date and may be amended or terminated by the Board of Directors at any time without prior notice.

On May 1, 2019, the Company announced a "modified Dutch auction" tender offer for up to $4.0 billion of its ordinary shares with a price range between $36.00 and $40.00 per share. The tender offer expired on May 31, 2019. Through the tender offer, the Company accepted for payment 102 million shares at a purchase price of $39.25 per share, for a total of approximately $4,035 million, including fees and commissions. The shares purchased through the tender offer were immediately retired. Ordinary shares were reduced by the number of shares retired at $0.01 par value per share. The excess purchase price over par value was recorded in retained earnings in the consolidated statements of financial position.

In addition to the equity tender offer described above, during fiscal year 2019, the Company repurchased and retired approximately $1,948 million of its ordinary shares. As of September 30, 2019, approximately $4.6 billion remains available under the share repurchase program. During fiscal years 2018 and 2017, the Company repurchased approximately $300 million and $651 million of its ordinary shares, respectively.

Other comprehensive income includes activity relating to discontinued operations. The following schedules present changes in consolidated equity attributable to Johnson Controls and noncontrolling interests (in millions, net of tax):

	Equity Attributable to Johnson Controls International plc	Equity Attributable to Noncontrolling Interests	Total Equity
At September 30, 2016	$ 24,118	$ 972	$ 25,090
Total comprehensive income (loss):			
Net income	1,611	164	1,775
Foreign currency translation adjustments	108	(18)	90
Realized and unrealized gains (losses) on derivatives	(14)	1	(13)
Realized and unrealized gains on marketable securities	5	—	5
Other comprehensive income (loss)	99	(17)	82
Comprehensive income	1,710	147	1,857
Other changes in equity:			
Cash dividends - ordinary shares ($1.00 per share)	(938)	—	(938)
Dividends attributable to noncontrolling interests	—	(56)	(56)
Repurchases of ordinary shares	(651)	—	(651)
Change in noncontrolling interest share	—	(5)	(5)
Spin-off of Adient	(4,038)	(138)	(4,176)
Other, including options exercised	246	—	246
At September 30, 2017	20,447	920	21,367
Total comprehensive income (loss):			
Net income	2,162	186	2,348
Foreign currency translation adjustments	(458)	(22)	(480)
Realized and unrealized losses on derivatives	(19)	(1)	(20)
Realized and unrealized gains on marketable securities	4	—	4
Other comprehensive loss	(473)	(23)	(496)
Comprehensive income	1,689	163	1,852
Other changes in equity:			
Cash dividends - ordinary shares ($1.04 per share)	(968)	—	(968)
Dividends attributable to noncontrolling interests	—	(43)	(43)
Repurchases of ordinary shares	(300)	—	(300)
Change in noncontrolling interest share	—	23	23
Adoption of ASU 2016-09	179	—	179
Reclassification from redeemable noncontrolling interest	—	231	231
Other, including options exercised	117	—	117
At September 30, 2018	21,164	1,294	22,458
Total comprehensive income (loss):			
Net income	5,674	213	5,887
Foreign currency translation adjustments	(325)	(17)	(342)
Realized and unrealized gains (losses) on derivatives	7	(1)	6
Pension and postretirement plans	(6)	—	(6)
Other comprehensive loss	(324)	(18)	(342)
Comprehensive income	5,350	195	5,545
Other changes in equity:			
Cash dividends - ordinary shares ($1.04 per share)	(887)	—	(887)
Dividends attributable to noncontrolling interests	—	(132)	(132)
Repurchases and retirements of ordinary shares	(5,983)	—	(5,983)
Divestiture of Power Solutions	483	(295)	188
Adoption of ASC 606	(45)	—	(45)
Adoption of ASU 2016-16	(546)	—	(546)
Other, including options exercised	230	1	231
At September 30, 2019	$ 19,766	$ 1,063	$ 20,829

As previously disclosed, during the quarter ended December 31, 2018, the Company adopted ASC 606, "Revenue from Contracts with Customers." As a result, the Company recorded $45 million to beginning retained earnings, which relates primarily to deferred revenue recorded for the Power Solutions business for certain battery core returns that represent a material right provided to customers.

As previously disclosed, during the quarter ended December 31, 2018, the Company adopted ASU 2016-16, "Accounting for Income Taxes: Intra-Entity Asset Transfers of Assets Other Than Inventory." As a result, the Company recognized deferred taxes of $546 million related to the tax effects of all intra-entity sales of assets other than inventory on a modified retrospective basis through a cumulative-effect adjustment to retained earnings as of October 1, 2018.

As previously disclosed, during the quarter ended December 31, 2017, the Company adopted ASU No. 2016-09. As a result, the Company recognized deferred tax assets of $179 million related to certain operating loss carryforwards resulting from the exercise of employee stock options and restricted stock vestings on a modified retrospective basis through a cumulative-effect adjustment to retained earnings as of October 1, 2017.

On October 31, 2016, the Company completed the Adient spin-off. As a result of the spin-off, the Company divested net assets of approximately $4.0 billion.

The Company consolidates certain subsidiaries in which the noncontrolling interest party has within their control the right to require the Company to redeem all or a portion of its interest in the subsidiary. The redeemable noncontrolling interests are reported at their estimated redemption value. Any adjustment to the redemption value impacts retained earnings but does not impact net income. Redeemable noncontrolling interests which are redeemable only upon future events, the occurrence of which is not currently probable, are recorded at carrying value. As of September 30, 2019 and 2018, the Company does not have any subsidiaries for which the noncontrolling interest party has within their control the right to require the Company to redeem any portion of its interests.

The following schedules present changes in the redeemable noncontrolling interests (in millions):

	Year Ended September 30, 2018	Year Ended September 30, 2017
Beginning balance, September 30	$ 211	$ 234
Net income	35	44
Foreign currency translation adjustments	(3)	13
Realized and unrealized losses on derivatives	(9)	(1)
Dividends	(3)	(43)
Reclassification to noncontrolling interest	(231)	—
Spin-off of Adient	—	(36)
Ending balance, September 30	$ —	$ 211

The following schedules present changes in AOCI attributable to Johnson Controls (in millions, net of tax):

	Year Ended September 30, 2019	Year Ended September 30, 2018	Year Ended September 30, 2017
Foreign currency translation adjustments			
Balance at beginning of period	$ (939)	$ (481)	$ (1,152)
Divestiture of Power Solutions	479	—	—
Aggregate adjustment for the period (net of tax effect of $0, $(3) and $1) *	(325)	(458)	108
Adient spin-off impact (net of tax effect of $0)	—	—	563
Balance at end of period	(785)	(939)	(481)
Realized and unrealized gains (losses) on derivatives			
Balance at beginning of period	(13)	6	4
Divestiture of Power Solutions (net of tax effect of $1, $0 and $0)	4	—	—
Current period changes in fair value (net of tax effect of $(1), $(4) and $4)	(1)	(8)	9
Reclassification to income (net of tax effect of $2, $(5) and $(10)) **	8	(11)	(23)
Adient spin-off impact (net of tax effect of $0, $0 and $6)	—	—	16
Balance at end of period	(2)	(13)	6
Realize and unrealized gains (losses) on marketable securities			
Balance at beginning of period	8	4	(1)
Adoption of ASU 2016-01 ***	(8)	—	—
Current period changes in fair value (net of tax effect of $0, $1 and $1)	—	5	5
Reclassification to income (net of tax effect of $0, $(1) and $0) ****	—	(1)	—
Balance at end of period	—	8	4
Pension and postretirement plans			
Balance at beginning of period	(2)	(2)	(4)
Other changes (net of tax effect of $0)	(6)	—	—
Adient spin-off impact (net of tax effect of $0)	—	—	2
Balance at end of period	(8)	(2)	(2)
Accumulated other comprehensive loss, end of period	$ (795)	$ (946)	$ (473)

* During fiscal 2018, $12 million of cumulative CTA was recognized as part of the divestiture-related gain recognized as part of the divestiture of Scott Safety.

** Refer to Note 10, "Derivative Instruments and Hedging Activities," of the notes to consolidated financial statements for disclosure of the line items on the consolidated statements of income affected by reclassifications from AOCI into income related to derivatives.

*** As previously disclosed, during the quarter ended December 31, 2018, the Company adopted ASU 2016-01, "Financial Instruments - Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities." As a result the Company reclassified $8 million of unrealized gains on marketable securities to retained earnings as of October 1, 2018.

**** During fiscal 2018, the Company sold certain marketable common stock for approximately $3 million. As a result, the Company recorded $2 million of realized gains within selling, general and administrative expenses.

15. RETIREMENT PLANS

Pension Benefits

The Company has non-contributory defined benefit pension plans covering certain U.S. and non-U.S. employees. The benefits provided are primarily based on years of service and average compensation or a monthly retirement benefit amount. Certain of the Company's U.S. pension plans have been amended to prohibit new participants from entering the plans and no longer accrue benefits. Funding for U.S. pension plans equals or exceeds the minimum requirements of the Employee Retirement Income Security Act of 1974. Funding for non-U.S. plans observes the local legal and regulatory limits. Also, the Company makes contributions to union-trusteed pension funds for construction and service personnel.

For pension plans with accumulated benefit obligations ("ABO") that exceed plan assets for continuing and discontinued operations, the projected benefit obligation ("PBO"), ABO and fair value of plan assets of those plans were $5,450 million, $5,388 million and $4,484 million, respectively, as of September 30, 2019 and $5,166 million, $5,072 million and $4,525 million, respectively, as of September 30, 2018.

In fiscal 2019, total employer contributions for continuing operations to the defined benefit pension plans were $50 million, none of which were voluntary contributions made by the Company. The Company expects to contribute approximately $50 million in cash to its defined benefit pension plans in fiscal 2020. Projected benefit payments from the plans as of September 30, 2019 are estimated as follows (in millions):

2020	$ 311
2021	289
2022	294
2023	297
2024	303
2025-2029	1,487

Postretirement Benefits

The Company provides certain health care and life insurance benefits for eligible retirees and their dependents primarily in the U.S. and Canada. Most non-U.S. employees are covered by government sponsored programs, and the cost to the Company is not significant.

Eligibility for coverage is based on meeting certain years of service and retirement age qualifications. These benefits may be subject to deductibles, co-payment provisions and other limitations, and the Company has reserved the right to modify these benefits. Effective January 31, 1994, the Company modified certain U.S. salaried plans to place a limit on the Company's cost of future annual retiree medical benefits at no more than 150% of the 1993 cost.

The health care cost trend assumption does not have a significant effect on the amounts reported.

In fiscal 2019, total employer contributions for continuing operations to the postretirement plans were $3 million. The Company expects to contribute approximately $4 million in cash to its postretirement plans in fiscal 2020 for continuing operations. Projected benefit payments from the plans as of September 30, 2019 are estimated as follows (in millions):

2020	$ 17
2021	16
2022	16
2023	16
2024	15
2025-2029	58

In December 2003, the U.S. Congress enacted the Medicare Prescription Drug, Improvement and Modernization Act of 2003 ("Act") for employers sponsoring postretirement care plans that provide prescription drug benefits. The Act introduces a prescription drug benefit under Medicare as well as a federal subsidy to sponsors of retiree health care benefit plans providing a benefit that is at least actuarially equivalent to Medicare Part D.1. Under the Act, the Medicare subsidy amount is received directly by the plan sponsor and not the related plan. Further, the plan sponsor is not required to use the subsidy amount to fund postretirement benefits and may use the subsidy for any valid business purpose. Projected subsidy receipts are estimated to be less than $1 million per year over the next ten years.

Defined Contribution Plans

The Company sponsors various defined contribution savings plans that allow employees to contribute a portion of their pre-tax and/or after-tax income in accordance with plan specified guidelines. Under specified conditions, the Company will contribute to certain savings plans based on predetermined percentages of compensation earned by the employee and/or will match a percentage of the employee contributions up to certain limits. Defined contribution plan contributions charged to expense for continuing and discontinued operations amounted to $198 million, $205 million and $190 million for the fiscal years ended 2019, 2018 and 2017, respectively.

Multiemployer Benefit Plans

The Company contributes to multiemployer benefit plans based on obligations arising from collective bargaining agreements related to certain of its hourly employees in the U.S. These plans provide retirement benefits to participants based on their service to contributing employers. The benefits are paid from assets held in trust for that purpose. The trustees typically are responsible for determining the level of benefits to be provided to participants as well as for such matters as the investment of the assets and the administration of the plans.

The risks of participating in these multiemployer benefit plans are different from single-employer benefit plans in the following aspects:

- Assets contributed to the multiemployer benefit plan by one employer may be used to provide benefits to employees of other participating employers.
- If a participating employer stops contributing to the multiemployer benefit plan, the unfunded obligations of the plan may be borne by the remaining participating employers.
- If the Company stops participating in some of its multiemployer benefit plans, the Company may be required to pay those plans an amount based on its allocable share of the underfunded status of the plan, referred to as a withdrawal liability.

The Company participates in approximately 285 multiemployer benefit plans, none of which are individually significant to the Company. The number of employees covered by the Company's multiemployer benefit plans has remained consistent over the past three years, and there have been no significant changes that affect the comparability of fiscal 2019, 2018 and 2017 contributions. The Company recognizes expense for the contractually-required contribution for each period. The Company contributed $69 million, $68 million and $67 million to multiemployer benefit plans in fiscal 2019, 2018 and 2017, respectively.

Based on the most recent information available, the Company believes that the present value of actuarial accrued liabilities in certain of these multiemployer benefit plans may exceed the value of the assets held in trust to pay benefits. Currently, the Company is not aware of any significant multiemployer benefits plans for which it is probable or reasonably possible that the Company will be obligated to make up any shortfall in funds. Moreover, if the Company were to exit certain markets or otherwise cease making contributions to these funds, the Company could trigger a withdrawal liability. Currently, the Company is not aware of any multiemployer benefit plans for which it is probable or reasonably possible that the Company will have a significant withdrawal liability. Any accrual for a shortfall or withdrawal liability will be recorded when it is probable that a liability exists and it can be reasonably estimated.

Plan Assets

The Company's investment policies employ an approach whereby a mix of equities, fixed income and alternative investments are used to maximize the long-term return of plan assets for a prudent level of risk. The investment portfolio primarily contains a diversified blend of equity and fixed income investments. Equity investments are diversified across U.S. and non-U.S. stocks, as well as growth, value and small to large capitalizations. Fixed income investments include corporate and government issues, with short-, mid- and long-term maturities, with a focus on investment grade when purchased and a target duration close to that of the plan liability. Investment and market risks are measured and monitored on an ongoing basis through regular investment portfolio reviews, annual liability measurements and periodic asset/liability studies. The majority of the real estate component of the portfolio is invested in a diversified portfolio of high-quality, operating properties with cash yields greater than the targeted appreciation. Investments in other alternative asset classes, including hedge funds and commodities, diversify the expected investment returns relative to the equity and fixed income investments. As a result of the Company's diversification strategies, there are no significant concentrations of risk within the portfolio of investments.

The Company’s actual asset allocations are in line with target allocations. The Company rebalances asset allocations as appropriate, in order to stay within a range of allocation for each asset category.

The expected return on plan assets is based on the Company’s expectation of the long-term average rate of return of the capital markets in which the plans invest. The average market returns are adjusted, where appropriate, for active asset management returns. The expected return reflects the investment policy target asset mix and considers the historical returns earned for each asset category.

The Company's plan assets at September 30, 2019 and 2018, by asset category, are as follows (in millions):

		Fair Value Measurements Using:		
Asset Category	Total as of September 30, 2019	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
<u>U.S. Pension</u>				
Cash and Cash Equivalents	$ 55	$ 24	$ 31	$ —
Equity Securities				
Large-Cap	276	276	—	—
Small-Cap	232	232	—	—
International - Developed	266	233	33	—
International - Emerging	52	42	10	—
Fixed Income Securities				
Government	332	47	285	—
Corporate/Other	1,266	1,266	—	—
Real Estate	55	55	—	—
Total Investments in the Fair Value Hierarchy	2,534	$ 2,175	$ 359	$ —
Investments Measured at Net Asset Value, as Practical Expedient:				
Real Estate Investments Measured at Net Asset Value*	202			
Total Plan Assets	$ 2,736			
<u>Non-U.S. Pension</u>				
Cash and Cash Equivalents	$ 174	$ 174	$ —	$ —
Equity Securities				
Large-Cap	214	23	191	—
International - Developed	289	54	235	—
International - Emerging	12	1	11	—
Fixed Income Securities				
Government	778	69	709	—
Corporate/Other	517	289	228	—
Hedge Fund	69	—	69	—
Real Estate	31	31	—	—
Total Investments in the Fair Value Hierarchy	2,084	$ 641	$ 1,443	$ —
Investments Measured at Net Asset Value, as Practical Expedient:				
Real Estate Investments Measured at Net Asset Value*	14			
Total Plan Assets	$ 2,098			
<u>Postretirement</u>				
Cash and Cash Equivalents	$ 6	$ 6	$ —	$ —
Equity Securities				
Large-Cap	22	—	22	—
Small-Cap	8	—	8	—
International - Developed	19	—	19	—
International - Emerging	9	—	9	—
Fixed Income Securities				
Government	20	—	20	—
Corporate/Other	55	—	55	—
Commodities	13	—	13	—
Real Estate	11	—	11	—
Total Plan Assets	$ 163	$ 6	$ 157	$ —

Asset Category	Total as of September 30, 2018	Fair Value Measurements Using: Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
U.S. Pension				
Cash and Cash Equivalents	$ 23	$ 2	$ 21	$ —
Equity Securities				
Large-Cap	430	309	121	—
Small-Cap	282	282	—	—
International - Developed	411	365	46	—
International - Emerging	94	80	14	—
Fixed Income Securities				
Government	333	307	26	—
Corporate/Other	1,183	1,119	64	—
Total Investments in the Fair Value Hierarchy	2,756	$ 2,464	$ 292	$ —
Investments Measured at Net Asset Value, as Practical Expedient:				
Real Estate Investments Measured at Net Asset Value*	290			
Total Plan Assets	$ 3,046			
Non-U.S. Pension				
Cash and Cash Equivalents	$ 44	$ 43	$ 1	$ —
Equity Securities				
Large-Cap	235	24	211	—
International - Developed	319	59	260	—
International - Emerging	15	1	14	—
Fixed Income Securities				
Government	830	80	750	—
Corporate/Other	545	301	244	—
Hedge Fund	82	—	82	—
Real Estate	26	26	—	—
Total Investments in the Fair Value Hierarchy	2,096	$ 534	$ 1,562	$ —
Investments Measured at Net Asset Value, as Practical Expedient:				
Real Estate Investments Measured at Net Asset Value*	21			
Total Plan Assets	$ 2,117			
Postretirement				
Cash and Cash Equivalents	$ 13	$ 13	$ —	$ —
Equity Securities				
Large-Cap	26	—	26	—
Small-Cap	8	—	8	—
International - Developed	20	—	20	—
International - Emerging	9	—	9	—
Fixed Income Securities				
Government	20	—	20	—
Corporate/Other	55	—	55	—
Commodities	14	—	14	—
Real Estate	9	—	9	—
Total Plan Assets	$ 174	$ 13	$ 161	$ —

* The fair value of certain investments in real estate do not have a readily determinable fair value and requires the fund managers to independently arrive at fair value by calculating net asset value ("NAV") per share. In order to calculate NAV per share, the fund managers value the real estate investments using any one, or a combination of, the following methods: independent third party appraisals, discounted cash flow analysis of net cash flows projected to be generated by the investment and recent sales of comparable investments. Assumptions used to revalue the properties are updated every quarter. Due to the fact that the fund managers calculate NAV per share, the Company utilizes a practical expedient for measuring the fair value of its real-estate investments, as provided for under ASC 820, "Fair Value Measurement." In applying the practical expedient, the Company is not required to further adjust the NAV provided by the fund manager in order to determine the fair value of its investment as the NAV per share is calculated in a manner consistent with the measurement principles of ASC 946, "Financial Services - Investment Companies," and as of the Company's measurement date. The Company believes this is an appropriate methodology to obtain the fair value of these assets. For the component of the real estate portfolio under development, the investments are carried at cost until they are completed and valued by a third party appraiser. In accordance with ASU No. 2015-07, "Disclosures for Investments in Certain Entities That Calculate Net Asset Value per Share (or Its Equivalent)," investments for which fair value is measured using the net asset value per share practical expedient should be disclosed separate from the fair value hierarchy. The fair value amounts presented in this table are intended to permit reconciliation of total plan assets to the amounts presented in the notes to consolidated financial statements.

The following is a description of the valuation methodologies used for assets measured at fair value. Certain assets are held within commingled funds which are valued at the unitized NAV or percentage of the net asset value as determined by the manager of the fund. These values are based on the fair value of the underlying net assets owned by the fund.

Cash and Cash Equivalents: The fair value of cash is valued at cost.

Equity Securities: The fair value of equity securities is determined by direct quoted market prices. The underlying holdings are direct quoted market prices on regulated financial exchanges.

Fixed Income Securities: The fair value of fixed income securities is determined by direct or indirect quoted market prices. If indirect quoted market prices are utilized, the value of assets held in separate accounts is not published, but the investment managers report daily the underlying holdings. The underlying holdings are direct quoted market prices on regulated financial exchanges.

Commodities: The fair value of the commodities is determined by quoted market prices of the underlying holdings on regulated financial exchanges.

Hedge Funds: The fair value of hedge funds is accounted for by the custodian. The custodian obtains valuations from underlying managers based on market quotes for the most liquid assets and alternative methods for assets that do not have sufficient trading activity to derive prices. The Company and custodian review the methods used by the underlying managers to value the assets. The Company believes this is an appropriate methodology to obtain the fair value of these assets.

Real Estate: The fair value of real estate is determined by quoted market prices of the underlying Real Estate Investment Trusts ("REITs"), which are securities traded on an open exchange.

The methods described above may produce a fair value calculation that may not be indicative of net realizable value or reflective of future fair values. Furthermore, while the Company believes its valuation methods are appropriate and consistent with other market participants, the use of different methodologies or assumptions to determine the fair value of certain financial instruments could result in a different fair value measurement at the reporting date.

There were no Level 3 assets as of September 30, 2019 or 2018 or any Level 3 asset activity during fiscal 2019 or 2018.

Funded Status

The table that follows contains the ABO and reconciliations of the changes in the PBO, the changes in plan assets and the funded status (in millions):

	Pension Benefits				Postretirement Benefits	
	U.S. Plans		Non-U.S. Plans			
September 30,	2019	2018	2019	2018	2019	2018
Accumulated Benefit Obligation	$ 3,115	$ 3,154	$ 2,549	$ 2,444	$ —	$ —
Change in Projected Benefit Obligation						
Projected benefit obligation at beginning of year	3,191	3,419	2,542	2,721	196	214
Service cost	8	15	22	23	1	2
Interest cost	108	105	54	57	6	7
Plan participant contributions	—	—	2	2	6	6
Power Solutions divestiture	(390)	—	(86)	—	(9)	—
Other divestitures	—	—	(8)	—	—	—
Actuarial (gain) loss	441	(70)	337	(67)	15	1
Amendments made during the year	—	—	26	—	(19)	(8)
Benefits and settlements paid	(243)	(278)	(126)	(130)	(23)	(24)
Estimated subsidy received	—	—	—	—	1	1
Curtailment	—	—	—	(2)	—	—
Other	—	—	(2)	(4)	—	(1)
Currency translation adjustment	—	—	(109)	(58)	—	(2)
Projected benefit obligation at end of year	$ 3,115	$ 3,191	$ 2,652	$ 2,542	$ 174	$ 196
Change in Plan Assets						
Fair value of plan assets at beginning of year	$ 3,046	$ 3,165	$ 2,117	$ 2,181	$ 174	$ 177
Actual return on plan assets	266	152	203	69	7	6
Power Solutions divestiture	(371)	—	(45)	—	(4)	—
Other divestitures	—	—	(4)	—	—	—
Employer and employee contributions	38	7	50	48	9	15
Benefits paid	(136)	(153)	(76)	(88)	(23)	(24)
Settlement payments	(107)	(125)	(50)	(42)	—	—
Other	—	—	(2)	(2)	—	—
Currency translation adjustment	—	—	(95)	(49)	—	—
Fair value of plan assets at end of year	$ 2,736	$ 3,046	$ 2,098	$ 2,117	$ 163	$ 174
Funded status	$ (379)	$ (145)	$ (554)	$ (425)	$ (11)	$ (22)
Amounts recognized in the statement of financial position consist of:						
Prepaid benefit cost	$ 30	$ 63	$ 25	$ 26	$ 66	$ 61
Accrued benefit liability	(409)	(156)	(579)	(409)	(77)	(83)
Accrued benefit liability - discontinued operations	—	(52)	—	(42)	—	—
Net amount recognized	$ (379)	$ (145)	$ (554)	$ (425)	$ (11)	$ (22)
Weighted Average Assumptions (1)						
Discount rate (2)	2.95%	4.10%	1.50%	2.45%	2.90%	3.80%
Rate of compensation increase	NA	3.50%	2.80%	2.95%	NA	NA

(1) Plan assets and obligations are determined based on a September 30 measurement date at September 30, 2019 and 2018.

(2) The Company considers the expected benefit payments on a plan-by-plan basis when setting assumed discount rates. As a result, the Company uses different discount rates for each plan depending on the plan jurisdiction, the demographics of

participants and the expected timing of benefit payments. For the U.S. pension and postretirement plans, the Company uses a discount rate provided by an independent third party calculated based on an appropriate mix of high quality bonds. For the non-U.S. pension and postretirement plans, the Company consistently uses the relevant country specific benchmark indices for determining the various discount rates. The Company has elected to utilize a full yield curve approach in the estimation of service and interest components of net periodic benefit cost (credit) for pension and other postretirement for plans that utilize a yield curve approach. The full yield curve approach applies the specific spot rates along the yield curve used in the determination of the benefit obligation to the relevant projected cash flows.

Accumulated Other Comprehensive Income

The amounts in AOCI on the consolidated statements of financial position, exclusive of tax impacts, that have not yet been recognized as components of net periodic benefit cost at September 30, 2019 and 2018 related to pension and postretirement benefits are $6 million and less than $1 million, respectively.

The amounts in AOCI expected to be recognized as components of net periodic benefit cost (credit) over the next fiscal year related to pension and postretirement benefits are not significant.

Net Periodic Benefit Cost

The table that follows contains the components of net periodic benefit costs, which are primarily recorded in selling, general and administrative expenses in the consolidated statements of income (in millions):

	Pension Benefits								
	U.S. Plans			Non-U.S. Plans			Postretirement Benefits		
Year ended September 30,	2019	2018	2017	2019	2018	2017	2019	2018	2017
Components of Net Periodic Benefit Cost (Credit):									
Service cost	$ 8	$ 15	$ 18	$ 22	$ 23	$ 32	$ 1	$ 2	$ 2
Interest cost	108	105	113	54	57	48	6	7	6
Expected return on plan assets	(199)	(229)	(229)	(105)	(114)	(92)	(9)	(10)	(10)
Net actuarial (gain) loss	361	7	(220)	236	(22)	(195)	17	5	(5)
Curtailment gain	—	—	—	—	(2)	(19)	—	—	—
Settlement (gain) loss	13	—	(16)	4	—	(1)	—	—	—
Net periodic benefit cost (credit)	291	(102)	(334)	211	(58)	(227)	15	4	(7)
Net periodic benefit (cost) credit related to discontinued operations	(2)	(5)	26	—	(7)	7	—	(2)	2
Net periodic benefit cost (credit) included in continuing operations	$ 289	$ (107)	$ (308)	$ 211	$ (65)	$ (220)	$ 15	$ 2	$ (5)
Expense Assumptions:									
Discount rate	4.10%	3.80%	3.70%	2.45%	2.40%	1.90%	3.80%	3.70%	3.30%
Expected return on plan assets	7.10%	7.50%	7.50%	5.20%	5.35%	4.60%	5.65%	5.65%	5.60%
Rate of compensation increase	3.50%	3.20%	3.20%	2.95%	2.90%	2.65%	NA	NA	NA

16. SIGNIFICANT RESTRUCTURING AND IMPAIRMENT COSTS

To better align its resources with its growth strategies and reduce the cost structure of its global operations in certain underlying markets, the Company commits to restructuring plans as necessary.

In fiscal 2018, the Company committed to a significant restructuring plan (2018 Plan) and recorded $255 million of restructuring and impairment costs for continuing operations in the consolidated statements of income. This was the total amount incurred to date and the total amount expected to be incurred for this restructuring plan. The restructuring actions related to cost reduction initiatives in the Company's Building Technologies & Solutions businesses and at Corporate. The costs consist primarily of workforce reductions, plant closures and asset impairments. Of the restructuring and impairment costs recorded, $113 million related to the Global Products segment, $56 million related to the Building Solutions EMEA/LA segment, $50 million related to Corporate, $20 million related to the Building Solutions North America segment and $16 million related to the Building Solutions Asia Pacific segment. The restructuring actions are expected to be substantially complete in 2020.

Additionally, the Company recorded $8 million of restructuring and impairment costs related to Power Solutions in fiscal 2018. This is reported within discontinued operations.

The following table summarizes the changes in the Company's 2018 Plan reserve, included within other current liabilities in the consolidated statements of financial position (in millions):

	Employee Severance and Termination Benefits	Long-Lived Asset Impairments	Other	Currency Translation	Total
Original reserve	$ 209	$ 42	$ 12	$ —	$ 263
Utilized—cash	(45)	—	(2)	—	(47)
Utilized—noncash	—	(42)	—	—	(42)
Balance at September 30, 2018	$ 164	$ —	$ 10	$ —	$ 174
Utilized—cash	(61)	—	(6)	—	(67)
Utilized—noncash	—	—	—	(1)	(1)
Transfer to liabilities held for sale	(4)	—	—	—	(4)
Balance at September 30, 2019	$ 99	$ —	$ 4	$ (1)	$ 102

In fiscal 2017, the Company committed to a significant restructuring plan (2017 Plan) and recorded $347 million of restructuring and impairment costs for continuing operations in the consolidated statements of income. This was the total amount incurred to date and the total amount expected to be incurred for this restructuring plan. The restructuring actions related to cost reduction initiatives in the Company's Building Technologies & Solutions businesses and at Corporate. The costs consist primarily of workforce reductions, plant closures and asset impairments. Of the restructuring and impairment costs recorded, $166 million related to Corporate, $74 million related to the Building Solutions EMEA/LA segment, $59 million related to the Building Solutions North America segment, $32 million related to the Global Products segment and $16 million related to the Building Solutions Asia Pacific segment. The restructuring actions are expected to be substantially complete in fiscal 2020.

Additionally, the Company recorded $20 million of restructuring and impairment costs related to Power Solutions in fiscal 2017. This is reported within discontinued operations.

The following table summarizes the changes in the Company's 2017 Plan reserve, included within other current liabilities in the consolidated statements of financial position (in millions):

	Employee Severance and Termination Benefits	Long-Lived Asset Impairments	Other	Currency Translation	Total
Original Reserve	$ 276	$ 77	$ 14	$ —	$ 367
Utilized—cash	(75)	—	—	—	(75)
Utilized—noncash	—	(77)	(1)	—	(78)
Adjustment to restructuring reserves	25	—	—	—	25
Balance at September 30, 2017	$ 226	$ —	$ 13	$ —	$ 239
Utilized—cash	(152)	—	(6)	—	(158)
Utilized—noncash	—	—	—	(1)	(1)
Balance at September 30, 2018	$ 74	$ —	$ 7	$ (1)	$ 80
Utilized—cash	(11)	—	(2)	—	(13)
Utilized—noncash	—	—	—	(3)	(3)
Transfer to liabilities held for sale	(3)	—	—	—	(3)
Balance at September 30, 2019	$ 60	$ —	$ 5	$ (4)	$ 61

In fiscal 2016, the Company committed to a significant restructuring plan (2016 Plan) and recorded $222 million of restructuring and impairment costs for continuing operations in the consolidated statements of income. The restructuring actions related to cost reduction initiatives in the Company's Building Technologies & Solutions businesses and at Corporate. The costs consist primarily of workforce reductions, plant closures, asset impairments and change-in-control payments. Of the restructuring and impairment costs recorded, $161 million related to Corporate, $44 million related to the Global Products segment and $17 million related to the Building Solutions EMEA/LA segment. The restructuring actions are substantially complete, and final payments are expected to be made in fiscal 2020. Included in the reserve is $56 million of committed restructuring actions taken by Tyco for liabilities assumed as part of the Tyco acquisition.

Additionally, the Company recorded $398 million of restructuring and impairment costs within discontinued operations related to Adient and Power Solutions in fiscal 2016. This is reported within discontinued operations.

The following table summarizes the changes in the Company's 2016 Plan reserve, included within other current liabilities in the consolidated statements of financial position (in millions):

	Employee Severance and Termination Benefits	Long-Lived Asset Impairments	Other	Currency Translation	Total
Original Reserve	$ 368	$ 190	$ 62	$ —	$ 620
Acquired Tyco restructuring reserves	78	—	—	—	78
Utilized—cash	(32)	—	—	—	(32)
Utilized—noncash	—	(190)	(32)	1	(221)
Balance at September 30, 2016	$ 414	$ —	$ 30	$ 1	$ 445
Adient spin-off impact	(194)	—	(22)	—	(216)
Utilized—cash	(86)	—	(2)	—	(88)
Utilized—noncash	—	—	—	1	1
Adjustment to restructuring reserves	(25)	—	—	—	(25)
Transfer to liabilities held for sale	(3)	—	—	—	(3)
Adjustment to acquired Tyco restructuring reserves	(22)	—	—	—	(22)
Balance at September 30, 2017	$ 84	$ —	$ 6	$ 2	$ 92
Utilized—cash	(17)	—	(2)	—	(19)
Balance at September 30, 2018	$ 67	$ —	$ 4	$ 2	$ 73
Utilized—cash	(37)	—	(4)	—	(41)
Balance at September 30, 2019	$ 30	$ —	$ —	$ 2	$ 32

The Company's fiscal 2018, 2017 and 2016 restructuring plans included workforce reductions of approximately 11,300 employees (9,100 for the Building Technologies & Solutions business and 2,200 for Corporate). Restructuring charges associated with employee severance and termination benefits are paid over the severance period granted to each employee or on a lump sum basis in accordance with individual severance agreements. As of September 30, 2019, approximately 6,200 of the employees have been separated from the Company pursuant to the restructuring plans. In addition, the restructuring plans included twelve plant closures in the Building Technologies & Solutions business. As of September 30, 2019, eleven of the twelve plants have been closed.

Company management closely monitors its overall cost structure and continually analyzes each of its businesses for opportunities to consolidate current operations, improve operating efficiencies and locate facilities in close proximity to customers. This ongoing analysis includes a review of its manufacturing, engineering and purchasing operations, as well as the overall global footprint for all its businesses.

17. IMPAIRMENT OF LONG-LIVED ASSETS

The Company reviews long-lived assets, including tangible assets and other intangible assets with definitive lives, for impairment whenever events or changes in circumstances indicate that the asset's carrying amount may not be recoverable. The Company conducts its long-lived asset impairment analyses in accordance with ASC 360-10-15, "Impairment or Disposal of Long-Lived Assets," ASC 350-30, "General Intangibles Other than Goodwill" and ASC 985-20, "Costs of Software to be Sold, Leased, or Marketed." ASC 360-10-15 requires the Company to group assets and liabilities at the lowest level for which identifiable cash flows are largely independent of the cash flows of other assets and liabilities and evaluate the asset group against the sum of the undiscounted future cash flows. If the undiscounted cash flows do not indicate the carrying amount of the asset group is recoverable, an impairment charge is measured as the amount by which the carrying amount of the asset group exceeds its fair value based on discounted cash flow analysis or appraisals. ASC 350-30 requires intangible assets acquired in a business combination that are used in research and development activities be considered indefinite lived until the completion or abandonment of the associated research and development efforts. During the period that those assets are considered indefinite lived, they shall not be amortized but shall be tested for impairment annually and more frequently if events or changes in circumstances indicate that it is more likely than not that the asset is impaired. If the carrying amount of an intangible asset exceeds its fair value, an entity shall recognize an impairment loss in an amount equal to that excess. ASC 985-20 requires the unamortized capitalized costs of a computer software product be compared to the net realizable value of that product. The amount by which the unamortized capitalized costs of a computer software product exceed the net realizable value of that asset shall be written off.

In fiscal 2019, the Company concluded it had a triggering event requiring assessment of impairment for certain of its long-lived assets in conjunction with the plans to dispose of a business within its Global Products segment that met the criteria to be classified as held for sale. Assets and liabilities held for sale are required to be recorded at the lower of carrying value or fair value less any costs to sell. Accordingly, the Company recorded an impairment charge of $235 million within restructuring and impairment costs in the consolidated statements of income in fiscal 2019 to write down the carrying value of the assets held for sale to fair value less any costs to sell. The inputs utilized in the analyses are classified as Level 3 inputs within the fair value hierarchy as defined in ASC 820, "Fair Value Measurement."

In fiscal 2018, the Company concluded it had a triggering event requiring assessment of impairment for certain of its long-lived assets in conjunction with its restructuring actions announced in fiscal 2018. As a result, the Company reviewed the long-lived assets for impairment and recorded $36 million of asset impairment charges within restructuring and impairment costs in the consolidated statements of income. Of the total impairment charges, $31 million related to the Global Products segment and $5 million related to Corporate assets. In addition, the Company recorded $6 million of asset impairments within discontinued operations related to the Power Solutions segment in fiscal 2018. Refer to Note 16, "Significant Restructuring and Impairment Costs," of the notes to consolidated financial statements for additional information. The impairments were measured under a market approach utilizing an appraisal to determine fair values of the impaired assets. This method is consistent with the methods the Company employed in prior periods to value other long-lived assets. The inputs utilized in the analyses are classified as Level 3 inputs within the fair value hierarchy as defined in ASC 820, "Fair Value Measurement."

In fiscal 2017, the Company concluded it had triggering events requiring assessment of impairment for certain of its long-lived assets in conjunction with its restructuring actions announced in fiscal 2017. As a result, the Company reviewed the long-lived assets for impairment and recorded $70 million of asset impairment charges within restructuring and impairment costs on the consolidated statements of income. Of the total impairment charges, $30 million related to the Building Solutions North America segment, $20 million related to the Global Products segment, $19 million related to Corporate assets and $1 million related to the Building Solutions Asia Pacific segment. In addition, the Company recorded $7 million of asset impairments within discontinued operations related to the Power Solutions segment in fiscal 2017. Refer to Note 16, "Significant Restructuring and Impairment Costs," of the notes to consolidated financial statements for additional information. The impairments were measured, depending on the asset, under either an income approach utilizing forecasted discounted cash flows or a market approach utilizing an appraisal to determine fair values of the impaired assets. These methods are consistent with the methods the Company employed in prior periods to value other long-lived assets. The inputs utilized in the analyses are classified as Level 3 inputs within the fair value hierarchy as defined in ASC 820, "Fair Value Measurement."

At September 30, 2019, 2018 and 2017, the Company concluded it did not have any other triggering events requiring assessment of impairment of its long-lived assets. Refer to Note 1, "Summary of Significant Accounting Policies," and Note 7, "Goodwill and Other Intangible Assets," of the notes to consolidated financial statements for discussion of the Company's goodwill impairment testing.

18. INCOME TAXES

The more significant components of the Company's income tax provision from continuing operations are as follows (in millions):

	Year Ended September 30,		
	2019	2018	2017
Tax expense at Ireland statutory rate	$ 132	$ 193	$ 144
U.S. state income tax, net of federal benefit	15	15	8
Income subject to the U.S. federal tax rate	(110)	39	(311)
Income subject to rates different than the statutory rate	38	(201)	185
Reserve and valuation allowance adjustments	(284)	31	(164)
Impact of acquisitions and divestitures	—	16	475
U.S. Tax Reform discrete items	—	108	—
Restructuring and impairment costs	(24)	(4)	(15)
Income tax provision (benefit)	$ (233)	$ 197	$ 322

The statutory tax rate in Ireland is being used as a comparison since the Company is domiciled in Ireland. The effective rate for continuing operations is below the statutory rate of 12.5% for fiscal 2019 primarily due to tax audit reserve adjustments, the income tax effects of mark-to-market adjustments, a tax indemnification reserve release, the tax benefits of an asset held for sale impairment charge and continuing global tax planning initiatives, partially offset by valuation allowance adjustments as a result of tax law changes, a discrete tax charge related to newly enacted regulations related to U.S. Tax Reform and tax rate differentials. The effective rate for continuing operations is above the statutory rate of 12.5% for fiscal 2018 primarily due to the discrete net impacts of U.S. Tax Reform, the final income tax effects of the completed divestiture of the Scott Safety business, and valuation allowance adjustments, partially offset by tax audit closures, tax benefits due to changes in entity tax status, the benefits of continuing global tax planning initiatives and tax rate differentials. The effective rate is above the statutory rate of 12.5% for fiscal 2017 primarily due to the establishment of a deferred tax liability on the outside basis difference of the Company's investment in certain subsidiaries related to the divestiture of the Scott Safety business, the income tax effects of mark-to-market adjustments and tax rate differentials, partially offset by the jurisdictional mix of significant restructuring and impairment costs, Tyco Merger transaction and integration costs, purchase accounting adjustments, tax audit closures, a tax benefit due to changes in entity tax status and the benefits of continuing global tax planning initiatives.

Valuation Allowances

The Company reviews the realizability of its deferred tax asset valuation allowances on a quarterly basis, or whenever events or changes in circumstances indicate that a review is required. In determining the requirement for a valuation allowance, the historical and projected financial results of the legal entity or consolidated group recording the net deferred tax asset are considered, along with any other positive or negative evidence. Since future financial results may differ from previous estimates, periodic adjustments to the Company’s valuation allowances may be necessary.

In the fourth quarter of fiscal 2019, the Company performed an analysis related to the realizablility of its worldwide deferred tax assets. As a result, and after considering feasible tax planning initiatives and other positive and negative evidence, the Company determined that it was more likely than not that certain deferred tax assets primarily within the U.S., Belgium, Japan and the United Kingdom would not be realized, and it is more likely than not that certain deferred tax assets of the U.S. and France will be realized. The valuation allowance adjustments resulted in an immaterial net impact to income tax expense for the three-month period ended September 30, 2019.

In the first quarter of fiscal 2019, as a result of changes to U.S. tax law, the Company recorded a discrete tax charge of $76 million related to valuation allowances on certain U.S. deferred tax assets.

In the fourth quarter of fiscal 2018, the Company performed an analysis related to the realizability of its worldwide deferred tax assets. As a result, and after considering feasible tax planning initiatives and other positive and negative evidence, the Company determined that it was more likely than not that certain deferred tax assets primarily within Germany would not be realized. Therefore, the Company recorded $56 million of valuation allowances as income tax expense in the three-month period ended September 30, 2018.

In the fourth quarter of fiscal 2017, the Company performed an analysis related to the realizability of its worldwide deferred tax assets. As a result, and after considering tax planning initiatives and other positive and negative evidence, the Company determined that it was more likely than not that certain deferred tax assets primarily in Canada, China and Mexico would not be able to be realized, and it was more likely than not that certain deferred tax assets in Germany would be realized. Therefore, the Company recorded $27 million of net valuation allowances as income tax expense in the three-month period ended September 30, 2017.

Uncertain Tax Positions

The Company is subject to income taxes in the U.S. and numerous foreign jurisdictions. Judgment is required in determining its worldwide provision for income taxes and recording the related assets and liabilities. In the ordinary course of the Company’s business, there are many transactions and calculations where the ultimate tax determination is uncertain. The Company is regularly under audit by tax authorities.

At September 30, 2019, the Company had gross tax effected unrecognized tax benefits for continuing operations of $2,451 million of which $2,121 million, if recognized, would impact the effective tax rate. Total net accrued interest at September 30, 2019 was approximately $181 million (net of tax benefit).

At September 30, 2018, the Company had gross tax effected unrecognized tax benefits for continuing operations of $2,358 million of which $2,225 million, if recognized, would impact the effective tax rate. Total net accrued interest at September 30, 2018 was approximately $119 million (net of tax benefit).

At September 30, 2017, the Company had gross tax effected unrecognized tax benefits for continuing operations of $2,161 million of which $2,034 million, if recognized, would impact the effective tax rate. Total net accrued interest at September 30, 2017 was approximately $99 million (net of tax benefit).

A reconciliation of the beginning and ending amount of unrecognized tax benefits is as follows (in millions):

	Year Ended September 30,		
	2019	2018	2017
Beginning balance, October 1	$ 2,358	$ 2,161	$ 1,694
Additions for tax positions related to the current year	433	435	613
Additions for tax positions of prior years	347	7	116
Reductions for tax positions of prior years	(88)	(201)	(44)
Settlements with taxing authorities	—	(19)	(95)
Statute closings and audit resolutions	(599)	(25)	(264)
Acquisition of business	—	—	141
Ending balance, September 30	$ 2,451	$ 2,358	$ 2,161

During fiscal 2019, the Company settled tax examinations impacting fiscal years 2015 to 2016 and adjusted various tax audit reserves which resulted in a $586 million net benefit to income tax expense in the fourth quarter. In the third quarter of fiscal 2019, the Company recorded a discrete charge related to newly enacted regulations related to U.S. Tax Reform and a discrete charge related to non-U.S. tax examinations which impacted the Company's reserves for uncertain tax positions resulting in a $226 million net charge to income tax expense.

During fiscal 2018, the Company settled tax examinations impacting fiscal years 2010 to fiscal 2012 which resulted in a $25 million net benefit to income tax expense.

During fiscal 2017, the Company settled a significant number of tax examinations impacting fiscal years 2006 to fiscal 2014. In the fourth quarter of fiscal 2017, income tax audit resolutions resulted in a net $191 million benefit to income tax expense.

The Company is currently under exam in the following major non-U.S. jurisdictions for continuing operations:

Tax Jurisdiction	Tax Years Covered
Belgium	2015 - 2017
China	2008 - 2018
Germany	2007 - 2016
Japan	2015 - 2018
Spain	2015
United Kingdom	2012 - 2015

It is reasonably possible that certain tax examinations and/or tax litigation will conclude within the next twelve months, which could have a material impact to tax expense.

Other Tax Matters

In the third quarter of fiscal 2019, the Company recorded a $235 million impairment charge related to assets held for sale. Refer to Note 17, "Impairment of Long-Lived Assets," of the notes to consolidated financial statements for further information regarding the impairment charge. The impairment charge generated a $53 million tax benefit.

In the third quarter of fiscal 2019, the Company released a $226 million tax indemnification reserve, which was recorded within selling, general and administrative expenses in the consolidated statements of income. Refer to Note 21, "Guarantees," of the notes to consolidated financial statements for further information regarding the reserve release. The reserve release generated no income tax expense.

During fiscal 2019, 2018, and 2017, the Company recorded transaction and integration costs for continuing operations of $317 million, $226 million and $427 million, respectively. These costs generated tax benefits of $35 million, $27 million and $69 million, respectively, which reflects the Company’s current tax position in these jurisdictions.

During fiscal 2019, 2018 and 2017, the Company recorded mark-to-market gains (losses) of $(618) million, $24 million and $384 million, respectively. These gains (losses) generated tax expense (benefit) of $(130) million, $1 million and $113 million, respectively, which reflects the Company’s current tax position in these jurisdictions.

In the fourth quarter of fiscal 2018, the Company recorded a tax benefit of $139 million due to changes in entity tax status.

In the first quarter of fiscal 2018, the Company completed the sale of its Scott Safety business to 3M Company. In connection with the sale, the Company recorded a pre-tax gain of $114 million and income tax expense of $30 million. In addition, during fiscal 2017, the Company recorded a discrete non-cash tax charge of $490 million related to establishment of a deferred tax liability on the outside basis difference of the Company's investment in certain subsidiaries of the Scott Safety business. Refer to Note 2, "Acquisitions and Divestitures," of the notes to consolidated financial statements for additional information.

During fiscal 2018 and 2017, the Company incurred significant charges for restructuring and impairment costs for continuing operations of $255 million and $347 million, respectively. Refer to Note 16, "Significant Restructuring and Impairment Costs," of the notes to consolidated financial statements for additional information. These costs generated tax benefits of $36 million and $58 million, respectively, which reflects the Company’s current tax position in these jurisdictions.

In the third quarter of fiscal 2017, the Company recorded a discrete tax benefit of $75 million due to changes in entity tax status.

In the first quarter of fiscal 2017, the Company recorded a discrete tax benefit of $101 million due to changes in entity tax status.

Impacts of Tax Legislation and Change in Statutory Tax Rates

On September 28, 2018 the Swiss Parliament approved the Federal Act on Tax Reform and AHV Financing (“TRAF”), which was subsequently approved by the Swiss electorate on May 19, 2019. During the fourth quarter of fiscal 2019, the Swiss Federal Council enacted TRAF which becomes effective for the Company on January 1, 2020. The impacts of the federal enactment did not have a material impact to the Company’s financial statements. TRAF also provides for parameters which enable the Swiss cantons to adjust tax rates and establish new regulations for companies. As of September 30, 2019, the canton of Schaffhausen had not concluded its public referendum; however, the enactment did take place in October 2019. The Company is still evaluating the impact on the deferred tax assets in the canton of Schaffhausen and the revaluation of these assets could have a noncash impact of less than $100 million to the Company’s financial statements.

On December 22, 2017, the “Tax Cuts and Jobs Act” (H.R. 1) was enacted and significantly revised U.S. corporate income tax by, among other things, lowering corporate income tax rates, imposing a one-time transition tax on deemed repatriated earnings of non-U.S. subsidiaries, and implementing a territorial tax system and various base erosion minimum tax provisions.

In connection with the Company’s analysis of the impact of the U.S. tax law changes, the Company recorded a provisional net tax charge of $108 million during fiscal 2018 consistent with guidance prescribed by Staff Accounting Bulletin 118. This provisional net tax charge arises from a benefit of $108 million due to the remeasurement of U.S. deferred tax assets and liabilities, offset by the Company’s tax charge relating to the one-time transition tax on deemed repatriated earnings, inclusive of all relevant taxes, of $216 million. The Company’s estimated benefit of the remeasurement of U.S. deferred tax assets and liabilities increased from $101 million as of December 31, 2017 to $108 million as of September 30, 2018 due to calculation refinement of the Company’s estimated impact. The Company remeasured certain deferred tax assets and liabilities based on the rates at which they are expected to reverse in the future, which is generally 21% or the blended fiscal 2018 rate of 24.5%. The Company’s tax charge for transition tax decreased from $305 million as of December 31, 2017 to $216 million as of September 30, 2018 due to further analysis of the Company’s post-1986 non-U.S. earnings and profits (“E&P”) previously deferred from U.S. federal taxation and refinement of the estimated impact of tax law changes. During fiscal 2019, the Company completed its analysis of all enactment-date income tax effects of the U.S. tax law change with no further adjustment to the provisional amounts recorded as of September 30, 2018.

During the fiscal years ended 2019, 2018 and 2017, other tax legislation was adopted in various jurisdictions. These law changes did not have a material impact on the Company's consolidated financial statements.

Continuing Operations

Components of the provision (benefit) for income taxes on continuing operations were as follows (in millions):

	Year Ended September 30,		
	2019	2018	2017
Current			
U.S. federal	$ (1,025)	$ 476	$ (286)
U.S. state	(33)	26	(18)
Non-U.S.	213	434	53
	(845)	936	(251)
Deferred			
U.S. federal	412	(372)	523
U.S. state	84	(10)	33
Non-U.S.	116	(357)	17
	612	(739)	573
Income tax provision (benefit)	$ (233)	$ 197	$ 322

Consolidated U.S. income (loss) from continuing operations before income taxes and noncontrolling interests for the fiscal years ended September 30, 2019, 2018 and 2017 was income (loss) of $(259) million, $261 million and $335 million, respectively. Consolidated non-U.S. income from continuing operations before income taxes and noncontrolling interests for the fiscal years ended September 30, 2019, 2018 and 2017 was income of $1,315 million, $1,285 million and $816 million, respectively.

Continuing operations income taxes paid for the fiscal years ended September 30, 2019, 2018 and 2017 were $377 million, $81 million and $497 million, respectively. At September 30, 2019 and 2018, the Company recorded within the continuing operations consolidated statements of financial position in other current assets approximately $1,069 million and $257 million, respectively, of income tax assets. At September 30, 2019 and 2018, the Company recorded within the continuing operations consolidated statements of financial position in other current liabilities approximately $159 million and $336 million, respectively, of accrued income tax liabilities.

The Company has not provided U.S. or non-U.S. income taxes on approximately $20.1 billion of outside basis differences of consolidated subsidiaries of Johnson Controls International plc. The Company is indefinitely reinvested in these basis differences. The reduction of the outside basis differences via the sale or liquidation of these subsidiaries and/or distributions could create taxable income. The Company's intent is to reduce the outside basis differences only when it would be tax efficient. Given the numerous ways in which the basis differences may be reduced, it is not practicable to estimate the amount of unrecognized withholding taxes and deferred tax liability on the outside basis differences.

Deferred taxes were classified in the consolidated statements of financial position as follows (in millions):

	September 30,	
	2019	2018
Other noncurrent assets	552	1,265
Other noncurrent liabilities	(588)	(727)
Net deferred tax asset (liability)	$ (36)	$ 538

Temporary differences and carryforwards which gave rise to deferred tax assets and liabilities included (in millions):

	September 30, 2019	September 30, 2018
Deferred tax assets		
Accrued expenses and reserves	$ 437	$ 458
Employee and retiree benefits	265	178
Net operating loss and other credit carryforwards	5,664	6,350
Research and development	106	93
	6,472	7,079
Valuation allowances	(5,068)	(5,088)
	1,404	1,991
Deferred tax liabilities		
Property, plant and equipment	139	179
Subsidiaries, joint ventures and partnerships	499	283
Intangible assets	759	915
Other, net	43	76
	1,440	1,453
Net deferred tax asset (liability)	$ (36)	$ 538

At September 30, 2019, the Company had available net operating loss carryforwards of approximately $23.3 billion, of which $13.8 billion will expire at various dates between 2020 and 2039, and the remainder has an indefinite carryforward period. The Company had available U.S. foreign tax credit carryforwards at September 30, 2019 of $35 million which will expire in 2029. The valuation allowance, generally, is for loss and credit carryforwards for which realization is uncertain because it is unlikely that the losses and/or credits will be realized given the lack of sustained profitability and/or limited carryforward periods in certain countries.

During the first quarter of 2018, the Company adopted ASU 2016-09. As a result, the Company recognized deferred tax assets of $179 million in the consolidated statements of financial position related to certain operating loss carryforwards resulting from the exercise of employee stock options and restricted stock vestings on a modified retrospective basis through a cumulative-effect adjustment to retained earnings as of October 1, 2017.

19. SEGMENT INFORMATION

ASC 280, "Segment Reporting," establishes the standards for reporting information about segments in financial statements. In applying the criteria set forth in ASC 280, the Company has determined that it has four reportable segments for financial reporting purposes.

- Building Solutions North America designs, sells, installs, and services HVAC and controls systems, integrated electronic security systems (including monitoring), and integrated fire detection and suppression systems for commercial, industrial, retail, small business, institutional and governmental customers in North America. Building Solutions North America also provides energy efficiency solutions and technical services, including inspection, scheduled maintenance, and repair and replacement of mechanical and control systems, to non-residential building and industrial applications in the North American marketplace.

- Building Solutions EMEA/LA designs, sells, installs, and services HVAC, controls, refrigeration, integrated electronic security, integrated fire detection and suppression systems, and provides technical services to markets in Europe, the Middle East, Africa and Latin America.

- Building Solutions Asia Pacific designs, sells, installs, and services HVAC, controls, refrigeration, integrated electronic security, integrated fire detection and suppression systems, and provides technical services to the Asia Pacific marketplace.

- Global Products designs and produces heating and air conditioning for residential and commercial applications, and markets products and refrigeration systems to replacement and new construction market customers globally. The Global Products business also designs, manufactures and sells fire protection and security products, including intrusion security, anti-theft devices, and access control and video management systems, for commercial, industrial, retail, residential, small business, institutional and governmental customers worldwide. Global Products also includes the Johnson Controls-Hitachi joint venture.

During the first quarter of fiscal 2019, the Company determined that the Power Solutions business met the criteria to be classified as a discontinued operation, which required retrospective application to financial information for all periods presented. Refer to Note 3, "Discontinued Operations," of the notes to consolidated financial statements for further information regarding the Company's discontinued operations.

On October 1, 2018, the Company adopted ASU No. 2016-01, "Financial Instruments - Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities." The new standard requires the mark-to-market of marketable securities investments previously recorded within accumulated other comprehensive income on the statement of financial position be recorded in the statement of income on a prospective basis beginning as of the adoption date. As these restricted investments do not relate to the underlying operating performance of its business, the Company's definition of segment earnings excludes the mark-to-market adjustments beginning in the first quarter of fiscal 2019.

Management evaluates the performance of its business segments primarily on segment earnings before interest, taxes and amortization ("EBITA"), which represents income from continuing operations before income taxes and noncontrolling interests, excluding general corporate expenses, intangible asset amortization, net financing charges, restructuring and impairment costs, and net mark-to-market adjustments related to pension and postretirement plans and restricted asbestos investments.

Financial information relating to the Company's reportable segments is as follows (in millions):

	Year Ended September 30,		
	2019	2018	2017
Net Sales			
Building Solutions North America	$ 9,031	$ 8,679	$ 8,341
Building Solutions EMEA/LA	3,655	3,696	3,595
Building Solutions Asia Pacific	2,658	2,553	2,444
Global Products	8,624	8,472	8,455
Total net sales	$ 23,968	$ 23,400	$ 22,835

	Year Ended September 30,		
	2019	2018	2017
Segment EBITA			
Building Solutions North America (1)	$ 1,153	$ 1,109	$ 1,039
Building Solutions EMEA/LA (2)	368	344	290
Building Solutions Asia Pacific (3)	341	347	323
Global Products (4)	1,179	1,338	1,179
Total segment EBITA	$ 3,041	$ 3,138	$ 2,831
Amortization of intangible assets	(377)	(376)	(481)
Corporate expenses (5)	(405)	(584)	(770)
Net financing charges	(350)	(401)	(466)
Restructuring and impairment costs	(235)	(255)	(347)
Net mark-to-market adjustments	(618)	24	384
Income from continuing operations before income taxes	$ 1,056	$ 1,546	$ 1,151

	September 30, 2019	September 30, 2018	September 30, 2017
Assets			
Building Technologies & Solutions (6)			
Building Solutions North America (7)	$ 15,562	$ 15,384	$ 15,228
Building Solutions EMEA/LA (8)	4,786	4,997	4,885
Building Solutions Asia Pacific (9)	2,657	2,743	2,575
Global Products (10)	13,945	14,261	14,018
	36,950	37,385	36,706
Assets held for sale	158	8,203	10,725
Unallocated	5,179	3,209	4,453
Total	$ 42,287	$ 48,797	$ 51,884

	Year Ended September 30, 2019	2018	2017
Depreciation/Amortization			
Building Technologies & Solutions			
Building Solutions North America	$ 233	$ 236	$ 272
Building Solutions EMEA/LA	112	110	140
Building Solutions Asia Pacific	23	28	37
Global Products	396	390	410
	764	764	859
Corporate	61	60	60
Continuing Operations	825	824	919
Discontinued Operations	32	261	269
Total	$ 857	$ 1,085	$ 1,188

	Year Ended September 30, 2019	2018	2017
Capital Expenditures			
Building Technologies & Solutions			
Building Solutions North America	$ 119	$ 114	$ 107
Building Solutions EMEA/LA	93	73	98
Building Solutions Asia Pacific	26	26	27
Global Products	310	307	421
	548	520	653
Corporate	38	125	107
Continuing Operations	586	645	760
Discontinued Operations	197	385	583
Total	$ 783	$ 1,030	$ 1,343

(1) Building Solutions North America segment EBITA for the year ended September 30, 2018 and 2017 excludes $20 million and $59 million, respectively, of restructuring and impairment costs.

(2) Building Solutions EMEA/LA segment EBITA for the years ended September 30, 2018 and 2017 excludes $56 million and $74 million, respectively, of restructuring and impairment costs. For the years ended September 30, 2019, 2018 and 2017, EMEA/LA segment EBITA includes $12 million, $1 million and $5 million, respectively, of equity income.

(3) Building Solutions Asia Pacific segment EBITA for the year ended September 30, 2018 and 2017 excludes $16 million and $16 million, respectively, of restructuring and impairment costs. For the years ended September 30, 2019, 2018 and 2017, Asia Pacific segment EBITA includes $1 million, $1 million and $1 million, respectively, of equity income.

(4) Global Products segment EBITA for the years ended September 30, 2019, 2018 and 2017 excludes $235 million, $113 million and $32 million, respectively, of restructuring and impairment costs. For the years ended September 30, 2019, 2018 and 2017, Global Products segment EBITA includes $179 million, $175 million and $151 million, respectively, of equity income.

(5) Corporate expenses for the years ended September 30, 2018 and 2017 excludes $50 million and $166 million, respectively, of restructuring and impairment costs.

(6) Current year and prior year amounts exclude assets held for sale. Refer to Note 3, "Discontinued Operations," of the notes to consolidated financial statements for further information regarding the Company's disposal groups classified as held for sale.

(7) Buildings Solutions North America assets as of September 30, 2019, 2018 and 2017 include $8 million, $8 million and $8 million, respectively, of investments in partially-owned affiliates.

(8) Building Solutions EMEA/LA assets as of September 30, 2019, 2018 and 2017 include $109 million, $99 million and $107 million, respectively, of investments in partially-owned affiliates.

(9) Building Solutions Asia Pacific assets as of September 30, 2019 and 2018 include $6 million and $1 million, respectively, of investments in partially-owned affiliates.

(10) Global Products assets as of September 30, 2019, 2018 and 2017 include $730 million, $740 million and $629 million, respectively, of investments in partially-owned affiliates.

In fiscal years 2019, 2018 and 2017 no customer exceeded 10% of consolidated net sales.

Geographic Segments

Financial information relating to the Company's operations by geographic area is as follows (in millions):

	Year Ended September 30,		
	2019	2018	2017
Net Sales			
United States	$ 11,773	$ 11,306	$ 11,353
China	1,424	1,480	1,448
Japan	1,943	1,903	1,816
Germany	629	616	576
United Kingdom	1,042	1,075	872
Taiwan	612	661	625
Other foreign	4,625	4,423	4,222
Other European countries	1,920	1,936	1,923
Total	$ 23,968	$ 23,400	$ 22,835
Long-Lived Assets (Year-end)			
United States	$ 1,824	$ 1,879	$ 1,824
China	326	332	171
Japan	228	209	180
Germany	20	19	19
United Kingdom	77	73	109
Taiwan	141	154	169
Other foreign	568	464	595
Other European countries	164	170	274
Total	$ 3,348	$ 3,300	$ 3,341

Net sales attributed to geographic locations are based on the location of the assets producing the sales. Long-lived assets by geographic location consist of net property, plant and equipment.

20. NONCONSOLIDATED PARTIALLY-OWNED AFFILIATES

Investments in the net assets of nonconsolidated partially-owned affiliates are stated in the "Investments in partially-owned affiliates" line in the consolidated statements of financial position as of September 30, 2019 and 2018. Equity in the net income of nonconsolidated partially-owned affiliates is stated in the "Equity income" line in the consolidated statements of income for the years ended September 30, 2019, 2018 and 2017.

The following table presents summarized financial data for the Company's nonconsolidated partially-owned affiliates. The amounts included in the table below represent 100% of the results of continuing operations of such nonconsolidated partially-owned affiliates accounted for under the equity method.

Summarized balance sheet data as of September 30, 2019 and 2018 is as follows (in millions):

	September 30,	
	2019	2018
Current assets	$ 2,941	$ 3,134
Noncurrent assets	1,020	804
Total assets	$ 3,961	$ 3,938
Current liabilities	$ 2,135	$ 2,111
Noncurrent liabilities	157	150
Noncontrolling interests	67	39
Shareholders' equity	1,602	1,638
Total liabilities and shareholders' equity	$ 3,961	$ 3,938

Summarized income statement data for the years ended September 30, 2019, 2018 and 2017 is as follows (in millions):

	Year Ended September 30,		
	2019	2018	2017
Net sales	$ 3,882	$ 3,974	$ 3,113
Gross profit	1,070	1,049	855
Net income	411	390	347
Income attributable to noncontrolling interests	13	10	11
Net income attributable to the entity	398	380	336

21. GUARANTEES

Certain of the Company's subsidiaries at the business segment level have guaranteed the performance of third-parties and provided financial guarantees for uncompleted work and financial commitments. The terms of these guarantees vary with end dates ranging from the current fiscal year through the completion of such transactions and would typically be triggered in the event of nonperformance. Performance under the guarantees, if required, would not have a material effect on the Company's financial position, results of operations or cash flows.

The Company offers warranties to its customers depending upon the specific product and terms of the customer purchase agreement. A typical warranty program requires that the Company replace defective products within a specified time period from the date of sale. The Company records an estimate for future warranty-related costs based on actual historical return rates and other known factors. Based on analysis of return rates and other factors, the Company's warranty provisions are adjusted as necessary. The Company monitors its warranty activity and adjusts its reserve estimates when it is probable that future warranty costs will be different than those estimates.

The Company's product warranty liability for continuing operations is recorded in the consolidated statements of financial position in deferred revenue or other current liabilities if the warranty is less than one year and in other noncurrent liabilities if the warranty extends longer than one year.

The changes in the carrying amount of the Company's total product warranty liability for continuing operations, including extended warranties for which deferred revenue is recorded, for the fiscal years ended September 30, 2019 and 2018 were as follows (in millions):

	Year Ended September 30, 2019	Year Ended September 30, 2018
Balance at beginning of period	$ 315	$ 323
Accruals for warranties issued during the period	110	128
Accruals from acquisitions and divestitures	1	—
Accruals related to pre-existing warranties (including changes in estimates)	(39)	(14)
Settlements made (in cash or in kind) during the period	(101)	(120)
Currency translation	(1)	(2)
Balance at end of period	$ 285	$ 315

As a result of the Tyco merger in the fourth quarter of fiscal 2016, the Company recorded, as part of the acquired liabilities of Tyco, $290 million of post sale contingent tax indemnification liabilities. The liabilities are recorded at fair value and relate to certain tax related matters borne by the buyer of previously divested subsidiaries of Tyco which Tyco has indemnified certain parties and the amounts are probable of being paid. At September 30, 2018, the Company recorded liabilities of $255 million, of which $235 million was related to prior divested businesses and the remainder relates to Tyco's tax sharing agreements from its 2007 and 2012 spin-off transactions. These are certain guarantees or indemnifications extended among Tyco, Medtronic, TE Connectivity, ADT and Pentair in accordance with the terms of the 2007 and 2012 separation and tax sharing agreements. In fiscal 2019, the majority of tax indemnification liabilities were resolved including a $226 million release as a result of changes to the likelihood of payments due to the expiration of certain statute of limitations.

22. COMMITMENTS AND CONTINGENCIES

Environmental Matters

The Company accrues for potential environmental liabilities when it is probable a liability has been incurred and the amount of the liability is reasonably estimable. As of September 30, 2019, reserves for environmental liabilities for continuing operations totaled $159 million, of which $52 million was recorded within other current liabilities and $107 million was recorded within other noncurrent liabilities in the consolidated statements of financial position. Reserves for environmental liabilities for continuing operations totaled $37 million at September 30, 2018, of which $10 million was recorded within other current liabilities and $27 million was recorded within other noncurrent liabilities in the consolidated statements of financial position.

Tyco Fire Products L.P. ("Tyco Fire Products"), in coordination with the Wisconsin Department of Natural Resources ("WDNR"), has been conducting an environmental assessment of its Fire Technology Center ("FTC") located in Marinette, Wisconsin and surrounding areas in the City of Marinette and Town of Peshtigo, Wisconsin. In connection with the assessment, perfluorooctane sulfonate ("PFOS") and perfluorooctanoic acid ("PFOA") and/or other per- and poly fluorinated substances ("PFAS") have been detected at the FTC and in groundwater and surface water outside of the boundaries of the FTC. Tyco Fire Products continues to investigate the extent of potential migration of these compounds and is working closely with WDNR to address these issues insofar as they related to this migration.

During the third quarter of 2019, the Company increased its environmental reserves which included $140 million related to remediation efforts to be undertaken to address contamination relating to fire-fighting foams containing PFAS compounds at or near the FTC, as well as the continued remediation of arsenic and other contaminants at the Tyco Fire Products Stanton Street manufacturing facility also located in Marinette, Wisconsin (the "Stanton Street Facility"). The Company is not able to estimate a possible loss or range of loss in excess of the established accruals at this time.

A substantial portion of the increased reserves relates to remediation resulting from the use of fire-fighting foams containing PFAS at the FTC. The use of fire-fighting foams at the FTC was primarily for training and testing purposes in order to ensure that such products sold by the Company's affiliates, Chemguard, Inc. ("Chemguard") and Tyco Fire Products, were effective at suppressing high intensity fires that may occur at military installations, airports or elsewhere. The reserve was recorded in the quarter ended June 30, 2019 following a comprehensive review by independent environmental consultants related to the presence of PFAS at or near the FTC, as well as remediation discussions with the WDNR.

On June 21, 2019, the WDNR announced that it had received from the Wisconsin Department of Health Services ("WDHS") a recommendation for groundwater quality standards as to, among other compounds, PFOA and PFOS. The WDHS recommended a groundwater enforcement standard for PFOA and PFOS of 20 parts per trillion. On August 22, 2019, the Governor of Wisconsin issued an executive order that, among other things, directed the WDNR to create a PFAS Coordinating Council and to work with other Wisconsin agencies (including WDHS) to establish final groundwater quality standards based on the WDHS's prior recommendation.

In July 2019, the Company received a letter from the WDNR directing the expansion of the evaluation of PFAS in the Marinette region to include (1) biosolids sludge produced by the City of Marinette Waste Water Treatment Plant and spread on certain fields in the area and (2) the Menominee and Peshtigo Rivers. Tyco Fire Products voluntarily responded to the WDNR's letter to request additional necessary information. On October 16, 2019, the WDNR issued a "Notice of Noncompliance" to Tyco Fire Products and Johnson Controls, Inc. regarding the WDNR's July 3, 2019 letter. The letter stated that "if you fail to take the actions required by Wis. Stat. § 292.11 to address this contamination, the DNR will move forward under Wis. Stat. § 292.31 to implement the SI workplan and evaluate further environmental enforcement actions and cost recovery under Wis. Stat. § 292.31(8)." The WDNR issued a further letter regarding the issue on November 4, 2019. Tyco Fire Products and Johnson Controls, Inc. believe that they have complied with all applicable environmental laws and regulations. The Company cannot predict what regulatory or enforcement actions, if any, might result from the WDNR's actions, or the consequences of any such actions.

Tyco Fire Products has been engaged in remediation activities at the Stanton Street Facility since 1990. Its corporate predecessor, Ansul Incorporated ("Ansul") manufactured arsenic-based agricultural herbicides at the Stanton Street Facility, which resulted in significant arsenic contamination of soil and groundwater on the site and in parts of the adjoining Menominee River. In 2009, Ansul entered into an Administrative Consent Order (the "Consent Order") with the U.S. Environmental Protection Agency to address the presence of arsenic at the site. Under this agreement, Tyco Fire Products' principal obligations are to contain the arsenic contamination on the site, pump and treat on-site groundwater, dredge, treat and properly dispose of contaminated sediments in the adjoining river areas, and monitor contamination levels on an ongoing basis. Activities completed under the Consent Order since 2009 include the installation of a subsurface barrier wall around the facility to contain contaminated groundwater, the installation of a groundwater extraction and treatment system and the dredging and offsite disposal of treated river sediment. The increase in the reserve related to the Stanton Street Facility was recorded following a further review of the Consent Order, which resulted in the identification of several structural upgrades needed to preserve the effectiveness of prior remediation efforts.

Potential environmental liabilities accrued by the Company do not take into consideration possible recoveries of future insurance proceeds. They do, however, take into account the likely share other parties will bear at remediation sites. It is difficult to estimate the Company's ultimate level of liability at many remediation sites due to the large number of other parties that may be involved, the complexity of determining the relative liability among those parties, the uncertainty as to the nature and scope of the investigations and remediation to be conducted, the uncertainty in the application of law and risk assessment, the various choices and costs associated with diverse technologies that may be used in corrective actions at the sites, and the often quite lengthy periods over which eventual remediation may occur. It is possible that technological, regulatory or enforcement developments, the results of additional environmental studies or other factors could change the Company's expectations with respect to future charges and cash outlays, and such changes could be material to the Company's future results of operations, financial condition or cash flows. Nevertheless, the Company does not currently believe that any claims, penalties or costs in addition to the amounts accrued will have a material adverse effect on the Company's financial position, results of operations or cash flows. In addition, the Company has identified asset retirement obligations for environmental matters that are expected to be addressed at the retirement, disposal, removal or abandonment of existing owned facilities. At September 30, 2019 and 2018, the Company recorded conditional asset retirement obligations for continuing operations of $30 million and $29 million, respectively.

Asbestos Matters

The Company and certain of its subsidiaries, along with numerous other third parties, are named as defendants in personal injury lawsuits based on alleged exposure to asbestos containing materials. These cases have typically involved product liability claims based primarily on allegations of manufacture, sale or distribution of industrial products that either contained asbestos or were used with asbestos containing components.

As of September 30, 2019, the Company's estimated asbestos related net liability recorded on a discounted basis within the Company's consolidated statements of financial position was $141 million. The net liability within the consolidated statements of financial position was comprised of a liability for pending and future claims and related defense costs of $507 million, of which $50 million was recorded in other current liabilities and $457 million was recorded in other noncurrent liabilities. The Company also maintained separate cash, investments and receivables related to insurance recoveries within the consolidated statements of financial position of $366 million, of which $46 million was recorded in other current assets and $320 million was recorded in other noncurrent assets. Assets included $16 million of cash and $273 million of investments, which have all been designated as restricted. In connection with the recognition of liabilities for asbestos-related matters, the Company records asbestos-related insurance recoveries that are probable; the amount of such recoveries recorded at September 30, 2019 was $77 million. As of September 30, 2018, the Company's estimated asbestos related net liability recorded on a discounted basis within the Company's consolidated statements of financial position was $173 million. The net liability within the consolidated statements of financial position was comprised of a liability for pending and future claims and related defense costs of $550 million, of which $55 million was recorded in other current liabilities and $495 million was recorded in other noncurrent liabilities. The Company also maintained separate cash, investments and receivables related to insurance recoveries within the consolidated statements of financial position of $377 million, of which $33 million was recorded in other current assets and $344 million was recorded in other noncurrent assets. Assets included $6 million of cash and $281 million of investments, which have all been designated as restricted. In connection with the recognition of liabilities for asbestos-related matters, the Company records asbestos-related insurance recoveries that are probable; the amount of such recoveries recorded at September 30, 2018 was $90 million.

The Company's estimate of the liability and corresponding insurance recovery for pending and future claims and defense costs is based on the Company's historical claim experience, and estimates of the number and resolution cost of potential future claims that may be filed and is discounted to present value from 2068 (which is the Company's reasonable best estimate of the actuarially determined time period through which asbestos-related claims will be filed against Company affiliates). Asbestos related defense costs are included in the asbestos liability. The Company's legal strategy for resolving claims also impacts these estimates. The Company considers various trends and developments in evaluating the period of time (the look-back period) over which historical claim and settlement experience is used to estimate and value claims reasonably projected to be made through 2068. At least annually, the Company assesses the sufficiency of its estimated liability for pending and future claims and defense costs by evaluating actual experience regarding claims filed, settled and dismissed, and amounts paid in settlements. In addition to claims and settlement experience, the Company considers additional quantitative and qualitative factors such as changes in legislation, the legal environment, and the Company's defense strategy. The Company also evaluates the recoverability of its insurance receivable on an annual basis. The Company evaluates all of these factors and determines whether a change in the estimate of its liability for pending and future claims and defense costs or insurance receivable is warranted.

The amounts recorded by the Company for asbestos-related liabilities and insurance-related assets are based on the Company's strategies for resolving its asbestos claims, currently available information, and a number of estimates and assumptions. Key variables and assumptions include the number and type of new claims that are filed each year, the average cost of resolution of claims, the identity of defendants, the resolution of coverage issues with insurance carriers, amount of insurance, and the solvency risk with respect to the Company's insurance carriers. Many of these factors are closely linked, such that a change in one variable or assumption will impact one or more of the others, and no single variable or assumption predominately influences the determination of the Company's asbestos-related liabilities and insurance-related assets. Furthermore, predictions with respect to these variables are subject to greater uncertainty in the later portion of the projection period. Other factors that may affect the Company's liability and cash payments for asbestos-related matters include uncertainties surrounding the litigation process from jurisdiction to jurisdiction and from case to case, reforms of state or federal tort legislation and the applicability of insurance policies among subsidiaries. As a result, actual liabilities or insurance recoveries could be significantly higher or lower than those recorded if assumptions used in the Company's calculations vary significantly from actual results.

Insurable Liabilities

The Company records liabilities for its workers' compensation, product, general and auto liabilities. The determination of these liabilities and related expenses is dependent on claims experience. For most of these liabilities, claims incurred but not yet reported are estimated by utilizing actuarial valuations based upon historical claims experience. At September 30, 2019 and 2018, the insurable liabilities totaled $379 million and $417 million, respectively, of which $99 million and $95 million was recorded within other current liabilities, $22 million and $22 million was recorded within accrued compensation and benefits, and $258 million and $300 million was recorded within other noncurrent liabilities in the consolidated statements of financial position, respectively. The Company records receivables from third party insurers when recovery has been determined to be probable. The amount of such receivables recorded at September 30, 2019 was $23 million, of which $5 million was recorded within other current assets and $18 million was recorded within other noncurrent assets. The amount of such receivables recorded at September 30, 2018 was $26 million, of which $6 million was recorded within other current assets and $20 million was recorded within other noncurrent assets, respectively. The Company maintains captive insurance companies to manage its insurable liabilities.

Aqueous Film-Forming Foam ("AFFF") Litigation

Two of our subsidiaries, Chemguard and Tyco Fire Products, have been named, along with other defendant manufacturers, in a number of class action and other lawsuits relating to the use of fire-fighting foam products by the U.S. Department of Defense (the "DOD") and others for fire suppression purposes and related training exercises. Plaintiffs generally allege that the firefighting foam products manufactured by defendants contain or break down into the chemicals PFOS and PFOA and/or other PFAS compounds and that the use of these products by others at various airbases, airports and other sites resulted in the release of these chemicals into the environment and ultimately into communities' drinking water supplies neighboring those airports, airbases and other sites. PFOA, PFOS, and other PFAS compounds are being studied by the United States Environmental Protection Agency ("EPA") and other environmental and health agencies and researchers. The EPA has not issued binding regulatory limits, but has stated that it will propose regulatory standards for PFOS and PFOA in drinking water by the end of 2019, in accordance with its PFAS Action Plan released in February 2019. While those studies continue, the EPA has issued a health advisory level for PFOA and PFOS in drinking water. Both PFOA and PFOS are types of synthetic chemical compounds that have been present in firefighting foam. However, both are also present in many existing consumer products. According to EPA, PFOA and PFOS have been used to make carpets, clothing, fabrics for furniture, paper packaging for food and other materials (e.g., cookware) that are resistant to water, grease or stains.

Plaintiffs generally seek compensatory damages, including damages for alleged personal injuries, medical monitoring, diminution in property values, investigation and remediation costs, and natural resources damages, and also seek punitive damages and injunctive relief to address remediation of the alleged contamination.

In September 2018, the Company filed a Petition for Multidistrict Litigation with the United States Judicial Panel on Multidistrict Litigation ("JPML") seeking to consolidate all existing and future federal cases into one jurisdiction. On December 7, 2018, the JPML issued an order transferring various AFFF cases to a multi-district litigation ("MDL") before the United States District Court for the District of South Carolina. Additional cases have been identified for transfer to the MDL.

AFFF Putative Class Actions

Chemguard and Tyco Fire Products are named in 24 putative class actions in federal and state courts in Colorado, Delaware, Florida, Massachusetts, New York, Pennsylvania, Washington New Hampshire, Guam, and Michigan. Each of these cases has been transferred to the MDL. The following putative class actions were filed since the beginning of fiscal year 2019:

- *Grubb v. The 3M Company et al.*, filed October 30, 2018 in the United States District Court, District of Delaware.
- *County of Dutchess v. The 3M Company et al.,* filed October 12, 2018 in the United States District Court, Southern District of New York.
- *Battisti et al. v. The 3M Company et al.*, filed December 20, 2018 in the United States District Court, Middle District of Florida.
- *Jackson et al. v. The 3M Company et al.*, filed February 5, 2019 in the United States District Court, Western District of Washington.
- *Smith et al. v. The 3M Company et al.*, filed May 24, 2019 in the United States District Court, District of New Hampshire.
- *Cadrette et al. v. The 3M Company et al.*, filed May 24, 2019 in the United States District Court, Eastern District of Michigan.
- *Aguon et al. v. The 3M Company et al.*, filed October 3, 2019, in the United States District Court, District of Guam.

AFFF Individual or Mass Actions

There are approximately 61 individual or "mass" actions pending in federal court in Colorado (41 cases), New York (4 cases), Pennsylvania (11 cases), New Mexico (2 cases) and South Carolina (3 cases) against Chemguard and Tyco Fire Products and other defendants in which the plaintiffs generally seek compensatory damages, including damages for alleged personal injuries, medical monitoring, and alleged diminution in property values. The cases involve approximately 7,000 plaintiffs in Colorado, approximately 126 plaintiffs in New York, 15 plaintiffs in Pennsylvania, two plaintiffs in New Mexico, one plaintiff in New Hampshire, and two plaintiffs in Louisiana. These matters have been transferred to or directly-filed in the MDL. The Company is also on notice of approximately 660 other possible individual product liability claims by filings made in Pennsylvania state court, but complaints have not been filed in those matters, but the Company anticipates that they soon will be.

AFFF Municipal Cases

Chemguard and Tyco Fire Products are also defendants in 31 cases in federal and state courts involving municipal or water provider plaintiffs in Alaska, Arizona, California, Colorado, Florida, Massachusetts, New Jersey, New York, Maryland, Ohio, Pennsylvania, and South Carolina. These municipal plaintiffs generally allege that the use of the defendants' fire-fighting foam products at fire training academies, municipal airports, Air National Guard bases, or Navy bases released PFOS and PFOA into public water supply wells, allegedly requiring remediation of public property. All of these cases have been transferred to the MDL. The following municipal actions were filed since the beginning of fiscal year 2019:

- *Dutchess County v. The 3M Company et al.* filed October 12, 2018 (removed to the United States District Court, Southern District of New York) and styled as a class action.
- *City of Dayton v. The 3M Company et al.,* filed October 3, 2018 in the United States District Court, Southern District of Ohio.
- *City of Stuart v. The 3M Company et al.,* filed October 18, 2018 in the United States District Court, Southern District of Florida.
- *City of Tucson and Town of Marana v. The 3M Company et al.,* filed November 8, 2018 in the Superior Court of the State of Arizona, County of Pima (removed to the United States District Court for the District of Arizona).
- *New Jersey-American Water Company, Inc. v. The 3M Company et al.,* filed November 8, 2018 in the United States District Court for the District of New Jersey.
- *Village of Farmingdale v. The 3M Company et al.,* filed December 19, 2018 in the Supreme Court of the State of New York, County of Nassau (removed to the United States District Court for the Eastern District of New York).
- *Town of East Hampton v. The 3M Company et al.*, filed December 28, 2018 in the Supreme Court of the State of New York, County of Suffolk.
- *Ridgewood Water v. The 3M Company et al.*, filed February 25, 2019, in the Superior Court of the State of New Jersey, Bergen County (removed to the United States District Court for the District of New Jersey).
- *Atlantic City Municipal Utilities Authority v. The 3M Company et al.*, filed April 10, 2019 in the United States District Court, District of New Jersey.
- *Town of Vienna v. The 3M Company et al.*, filed March 30, 2019 in the United States District Court, District of Maryland.
- *New York American Water Company, Inc. v. The 3M Company et al.*, filed April 11, 2019 in the United States District Court, Eastern District of New York.
- *City of Fairbanks v. The 3M Company et al.*, filed April 26, 2019 in the United States District Court, District of Alaska.
- *County of Westchester v. The 3M Company et al.*, filed May 24, 2019 in the United States District Court, Southern District of New York.
- *Diane Hebrank et al. v. City of Newburgh v. The 3M Company et al.*, third-party complaint filed June 10, 2019, in the Supreme Court of New York, Orange County.
- *California-American Water v. The 3M Company et al.*, direct-filed on June 21, 2019 in the MDL pending in the United States District Court, District of South Carolina.
- *City of Sioux Falls v. The 3M Company et al.*, direct-filed on June 26, 2019 in the MDL pending in the United States District Court, District of South Carolina.
- *Sioux Falls Regional Airport Authority v. The 3M Company et al.*, direct-filed on June 28, 2019 in the MDL pending in the United States District Court, District of South Carolina.
- *Warminster Township Municipal Authority v. The 3M Company et al.*, direct-filed on August 30, 2019 in the MDL pending in the United States District Court, District of South Carolina.
- *Warrington Township v. The 3M Company et al.*, direct-filed on August 30, 2019 in the MDL pending in the United States District Court, District of South Carolina.
- *Horsham Water and Sewer Authority v. The 3M Company et al.*, direct-filed on August 30, 2019 in the MDL pending in the United States District Court, District of South Carolina.
- *Security Water District and Pike Peak Community Foundation v. United States et al.*, filed on March 5, 2019, in the United States District Court, District of Colorado.
- *Bakman Water Co. v. The 3M Company et al.,* direct-filed on September 30, 2019 in the MDL pending in the United States District Court, District of South Carolina.
- *California Water Service Co. v. The 3M Company et al.*, direct-filed on October 14, 2019 in the MDL pending in the United States District Court, District of South Carolina.
- *Town of Ayer v. The 3M Company et al.*, direct-filed on November 4, 2019 in the MDL pending in the United States District Court, District of South Carolina.

In May 2018, the Company was also notified by the Widefield Water and Sanitation District in Colorado Springs, Colorado that it may assert claims regarding its remediation costs in connection with PFOS and PFOA contamination allegedly resulting from the use of those products at the Peterson Air Force Base.

State Attorneys General Litigation related to AFFF

In June 2018, the State of New York filed a lawsuit in New York state court (State of New York v. The 3M Company et al., No. 904029-18 (N.Y. Sup. Ct., Albany County)) against a number of manufacturers, including affiliates of the Company, with respect to alleged PFOS and PFOA contamination purportedly resulting from firefighting foams used at locations across New York, including Stewart Air National Guard Base in Newburgh and Gabreski Air National Guard Base in Southampton, Plattsburgh Air Force Base in Plattsburgh, Griffiss Air Force Base in Rome, and unspecified "other" sites throughout the State. The lawsuit seeks to recover costs and natural resource damages associated with contamination at these sites. This suit has been removed to the United States District Court for the Northern District of New York and transferred to the MDL.

In February 2019, the State of New York filed a second lawsuit in New York state court (State of New York v. The 3M Company et al., (N.Y. Sup. Ct., Albany County)), against a number of manufacturers, including affiliates of the Company, with respect to alleged PFOS and PFOA contamination purportedly resulting from firefighting foams used at additional locations across New York. This suit has been removed to the United States District Court for the Northern District of New York and transferred to the MDL. In July 2019, the State of New York filed a third lawsuit in New York state court (*State of New York v. The 3M Company et al.*, (N.Y. Sup. Ct., Albany County)), against a number of manufacturers, including affiliates of the Company, with respect to alleged PFOS and PFOA contamination purportedly resulting from firefighting foams used at further additional locations across New York. This suit has been removed to the United States District Court for the Northern District of New York and transferred to the MDL. In November 2019, the State of New York filed a fourth lawsuit in New York state court (*State of New York v. The 3M Company et al.*, (N.Y. Sup. Ct., Albany County)), against a number of manufacturers, including affiliates of the Company, with respect to alleged PFOS and PFOA contamination purportedly resulting from firefighting foams used at further additional locations across New York. This suit has not been served yet.

In January 2019, the State of Ohio filed a lawsuit in Ohio state court (State of Ohio v. The 3M Company et al., No. G-4801-CI-021804752-000 (Court of Common Pleas of Lucas County, Ohio)) against a number of manufacturers, including affiliates of the Company, with respect to PFOS and PFOA contamination allegedly resulting from the use of firefighting foams at various specified and unspecified locations across Ohio. The lawsuit seeks to recover costs and natural resource damages associated with the contamination. This lawsuit has been removed to the United States District Court for the Northern District of Ohio and transferred to the MDL.

In addition, in May and June 2019, three other states filed lawsuits in their respective state courts against a number of manufacturers, including affiliates of the Company, with respect to PFOS and PFOA contamination allegedly resulting from the use of firefighting foams at various specified and unspecified locations across their jurisdictions (*State of New Hampshire v. The 3M Company et al.*; *State of Vermont v. The 3M Company et al.*; *State of New Jersey v. The 3M Company et al.*). All three of these suits have been removed to federal court and transferred to the MDL.

In September 2019, the government of Guam filed a lawsuit in the superior court of Guam against a number of manufacturers, including affiliates of the Company, with respect to PFOS and POA contamination allegedly resulting from the use of firefighting foams at various locations within its jurisdiction. This complaint has been removed to federal court and transferred to the MDL.

AFFF Matters Related to the Tyco Fire Products Fire Technology Center in Marinette, Wisconsin

Tyco Fire Products and Chemguard are defendants in one lawsuit in Marinette County, Wisconsin alleging damages due to the historical use of AFFF products at Tyco's Fire Technology Center in Marinette, Wisconsin. The putative class action, *Joan & Richard Campbell for themselves and on behalf of other similarly situated v. Tyco Fire Products LP and Chemguard Inc., et al.* (Marinette County Circuit Court, filed Dec. 17, 2018) alleges PFAS (including PFOA/PFOS) contaminated groundwater migrated off Tyco's property and into residential drinking water wells causing both personal injuries and property damage to the plaintiffs; Tyco and Chemguard removed this case to the United States District Court for the Eastern District of Wisconsin and it has been transferred to the MDL. A second lawsuit, *Duane and Janell Goldsmith individually and on behalf of H.G. and K.G v. Tyco Fire Products LP and Chemguard Inc., et al.* (Marinette County Circuit Court, filed Dec. 17, 2018) was also filed by a family alleging personal injuries due to contaminated groundwater; this case has been dismissed without prejudice.

The Company is vigorously defending the above AFFF matters and believes that it has meritorious defenses to class certification and the claims asserted. However, there are numerous factual and legal issues to be resolved in connection with these claims, and it is extremely difficult to predict the outcome or ultimate financial exposure, if any, represented by these matters, but there can be no assurance that any such exposure will not be material. The Company is also pursuing insurance coverage for these matters.

Bosch Litigation

On March 15, 2019, a German subsidiary of the Company received a complaint from Robert Bosch GmbH ("Bosch"), filed in a German court. The complaint relates to an automotive starter batteries joint venture in which the Company and Bosch were 80/20 parties to this joint venture. At the time the complaint was filed, JCI's ownership interest in the joint venture was to be transferred to entities controlled by the Purchaser upon consummation of the previously announced sale of the Company's Power Solutions business.

The complaint alleges that certain internal Company reorganization transactions were not in compliance with the arrangements relating to such joint venture. The complaint seeks a declaration that such internal reorganization transactions are void. In the alternative, the complaint seeks a declaration of damages that represent an alleged difference between (i) the value ascribed to the joint venture interests in connection with the Power Solutions sale and (ii) the value that was assigned to those interests in connection with such internal reorganization transactions. The Company believes that it has several strong defenses to the substance of the complaint and that the complaint substantially overstates any reasonable valuation of the joint venture interests. The Company does not believe the complaint has merit, and intends to defend it vigorously. While litigation is inherently uncertain, the Company believes that any ultimate liability that may arise from this proceeding would be immaterial to its business, financial condition and results of operations.

Under the previously announced Stock and Asset Purchase Agreement dated November 13, 2018 between the Company and the Purchaser, the Company has agreed to indemnify the Purchaser for any damages that could arise from this litigation. The German court litigation is currently stayed as the parties continue to work towards a resolution of the matter.

Other Matters

The Company is involved in various lawsuits, claims and proceedings incident to the operation of its businesses, including those pertaining to product liability, environmental, safety and health, intellectual property, employment, commercial and contractual matters, and various other casualty matters. Although the outcome of litigation cannot be predicted with certainty and some lawsuits, claims or proceedings may be disposed of unfavorably to us, it is management's opinion that none of these will have a material adverse effect on the Company's financial position, results of operations or cash flows. Costs related to such matters were not material to the periods presented.

23. RELATED PARTY TRANSACTIONS

In the ordinary course of business, the Company enters into transactions with related parties, such as equity affiliates. Such transactions consist of facility management services, the sale or purchase of goods and other arrangements.

The net sales to and purchases from related parties included in the consolidated statements of income were $217 million and $66 million, respectively, for fiscal 2019; $220 million and $63 million, respectively, for fiscal 2018; and $226 million and $61 million, respectively, for fiscal 2017.

The following table sets forth the amount of accounts receivable due from and payable to related parties in the consolidated statements of financial position (in millions):

	September 30,	
	2019	2018
Receivable from related parties	$ 34	$ 36
Payable to related parties	6	18

JOHNSON CONTROLS INTERNATIONAL PLC AND SUBSIDIARIES
SCHEDULE II - VALUATION AND QUALIFYING ACCOUNTS
(In millions)

Year Ended September 30,	2019	2018	2017
Accounts Receivable - Allowance for Doubtful Accounts			
Balance at beginning of period	$ 169	$ 172	$ 168
Provision charged to costs and expenses	37	14	25
Accounts charged off, net of recoveries	(21)	(17)	(41)
Acquisition (divestiture) of businesses	(10)	—	18
Currency translation	(2)	—	2
Balance at end of period	$ 173	$ 169	$ 172
Deferred Tax Assets - Valuation Allowance			
Balance at beginning of period	$ 5,088	$ 3,735	$ 3,290
Allowance provision for new operating and other loss carryforwards	195	1,639	550
Allowance provision benefits	(215)	(286)	(158)
Acquisition of businesses	—	—	53
Balance at end of period	$ 5,068	$ 5,088	$ 3,735

ITEM 9 CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

ITEM 9A CONTROLS AND PROCEDURES

Disclosure Controls and Procedures

The Company's management, with the participation of the Company's Chief Executive Officer and Chief Financial Officer, has evaluated the effectiveness of the Company's disclosure controls and procedures (as such term is defined in Rule 13a-15(e) under the Securities Exchange Act of 1934, as amended (the "Exchange Act")) as of the end of the period covered by this report. Based on such evaluations, the Company's Chief Executive Officer and Chief Financial Officer have concluded that, as of the end of such period, the Company's disclosure controls and procedures are effective in recording, processing, summarizing, and reporting, on a timely basis, information required to be disclosed by the Company in the reports that it files or submits under the Exchange Act, and that information is accumulated and communicated to the Company's management, including the Company's Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure.

Management's Report on Internal Control Over Financial Reporting

The Company's management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Exchange Act Rule 13a-15(f). The Company's management, with the participation of the Company's Chief Executive Officer and Chief Financial Officer, has evaluated the effectiveness of the Company's internal control over financial reporting based on the framework in Internal Control-Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on this evaluation, the Company's management has concluded that, as of September 30, 2019, the Company's internal control over financial reporting was effective.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

PricewaterhouseCoopers LLP, an independent registered public accounting firm, has audited the Company's consolidated financial statements and the effectiveness of internal control over financial reporting as of September 30, 2019 as stated in its report which is included in Item 8 of this Form 10-K and is incorporated by reference herein.

Changes in Internal Control Over Financial Reporting

There have been no changes in the Company's internal control over financial reporting during the quarter ended September 30, 2019, that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

ITEM 9B OTHER INFORMATION

None.

PART III

In response to Part III, Items 10, 11, 12, 13 and 14, parts of the Company's definitive proxy statement (to be filed pursuant to Regulation 14A within 120 days after Registrant's fiscal year-end of September 30, 2019) for its annual meeting to be held on March 4, 2020, are incorporated by reference in this Form 10-K.

ITEM 10 DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information relating to directors and nominees of Johnson Controls is set forth under the caption "Proposal Number One" in Johnson Controls' proxy statement for its annual meeting of stockholders to be held on March 4, 2020 (the "Johnson Controls Proxy Statement") and is incorporated by reference herein. Information about executive officers is included in Part I, Item 4 of this Annual Report on Form 10-K. The information required by Items 405, 407(c)(3), (d)(4) and (d)(5) of Regulation S-K is contained under the captions "Section 16(a) Beneficial Ownership Reporting Compliance," "Governance of the Company - Nomination of Directors and Board Diversity," "Governance of the Company - Board Committees", and "Committees of the Board - Audit Committee" of the Johnson Controls Proxy Statement and such information is incorporated by reference herein.

Code of Ethics

Johnson Controls has adopted a code of ethics for directors, officers (including the Company's principal executive officer, principal financial officer and principal accounting officer) and employees, known as the Code of Ethics. The Code of Ethics is available in the "Investors - Corporate Governance" section of its website at www.johnsoncontrols.com. The Company posts any amendments to or waivers of its Code of Ethics (to the extent applicable to the Company's directors or executive officers) at the same location on the Company's website. In addition, copies of the Code of Ethics may be obtained in print without charge upon written request by any stockholder to the office of the Company at One Albert Quay, Cork, Ireland.

ITEM 11 EXECUTIVE COMPENSATION

The information required by Item 402 of Regulation S-K is contained under the captions "Compensation Discussion & Analysis" (excluding the information under the caption "Compensation Committee Report on Executive Compensation"), "Executive Compensation Tables" and "Compensation of Non-Employee Directors" of the Johnson Controls Proxy Statement. Such information is incorporated by reference.

The information required by Items 407(e)(4) and (e)(5) of Regulation S-K is contained under the captions "Committees of the Board - Compensation Committee Interlocks and Insider Participation" and "Compensation Discussion & Analysis - Compensation Committee Report on Executive Compensation" of the Johnson Controls Proxy Statement. Such information (other than the Compensation Committee Report on Executive Compensation, which shall not be deemed to be "filed") is incorporated by reference.

ITEM 12 SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The information in the Johnson Controls Proxy Statement set forth under the caption "Security Ownership of Certain Beneficial Owners and Management" is incorporated herein by reference.

The following table provides information about the Company's equity compensation plans as of September 30, 2019:

	(a) Number of Securities to be Issued upon Exercise of Outstanding Options, Warrants and Rights	(b) Weighted-Average Exercise Price of Outstanding Options, Warrants and Rights	(c) Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans (Excluding Securities Reflected in Column (a))
Plan Category			
Equity compensation plans approved by shareholders	12,369,749	$ 35.07	34,144,013
Equity compensation plans not approved by shareholders	—	—	—
Total	12,369,749	$ 35.07	34,144,013

ITEM 13 CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The information in the Johnson Controls Proxy Statement set forth under the captions "Committees of the Board," "Governance of the Company - Director Independence," and "Governance of the Company - Other Directorships, Conflicts and Related Party Transactions," is incorporated herein by reference.

ITEM 14 PRINCIPAL ACCOUNTING FEES AND SERVICES

The information in the Johnson Controls Proxy Statement set forth under "Proposal Number Two" related to the appointment of auditors is incorporated herein by reference.

PART IV

ITEM 15 EXHIBITS, FINANCIAL STATEMENT SCHEDULES

	Page in Form 10-K
(a) The following documents are filed as part of this Form 10-K:	
(1) Financial Statements	
Report of Independent Registered Public Accounting Firm	49
Consolidated Statements of Income for the years ended September 30, 2019, 2018 and 2017	52
Consolidated Statements of Comprehensive Income (Loss) for the years ended September 30, 2019, 2018 and 2017	53
Consolidated Statements of Financial Position at September 30, 2019 and 2018	54
Consolidated Statements of Cash Flows for the years ended September 30, 2019, 2018 and 2017	55
Consolidated Statements of Shareholders' Equity for the years ended September 30, 2019, 2018 and 2017	56
Notes to Consolidated Financial Statements	57
(2) Financial Statement Schedule	
For the years ended September 30, 2019, 2018 and 2017:	
Schedule II - Valuation and Qualifying Accounts	118
(3) Exhibits	

Reference is made to the separate exhibit index contained on page 123 filed herewith.

All other schedules are omitted because they are not applicable, or the required information is shown in the financial statements or notes thereto.

Financial statements of 50% or less-owned companies have been omitted because the proportionate share of their profit before income taxes and total assets are individually less than 20% of the respective consolidated amounts, and investments in such companies are less than 20% of consolidated total assets. Refer to Note 20, "Non-Consolidated Partially-Owned Affiliates" of the notes to consolidated financial statements for the summarized financial data for the Company's nonconsolidated partially-owned affiliates.

ITEM 16 FORM 10-K SUMMARY

Not applicable.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

JOHNSON CONTROLS INTERNATIONAL PLC

By /s/ Brian J. Stief
Brian J. Stief
Vice Chairman and
Chief Financial Officer

Date: November 21, 2019

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below as of November 21, 2019, by the following persons on behalf of the registrant and in the capacities indicated:

/s/ George R. Oliver
George R. Oliver
Chairman and Chief Executive Officer
(Principal Executive Officer)

/s/ Brian J. Stief
Brian J. Stief
Vice Chairman and
Chief Financial Officer (Principal Financial Officer)

/s/ Robert M. VanHimbergen
Robert M. VanHimbergen
Vice President and Corporate Controller
(Principal Accounting Officer)

/s/ Jean Blackwell
Jean Blackwell
Director

/s/ Pierre Cohade
Pierre Cohade
Director

/s/ Mike Daniels
Mike Daniels
Director

/s/ Juan Pablo del Valle Perochena
Juan Pablo del Valle Perochena
Director

/s/ Roy Dunbar
Roy Dunbar
Director

/s/ Gretchen R. Haggerty
Gretchen R. Haggerty
Director

/s/ Simone Menne
Simone Menne
Director

/s/ Jürgen Tinggren
Jürgen Tinggren
Director

/s/ Mark P. Vergnano
Mark P. Vergnano
Director

/s/ David Yost
David Yost
Director

/s/ John D. Young
John D. Young
Director

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(a) (1) and (2) Financial Statements and Supplementary Data - See Item 8
(b) Exhibit Index:

Exhibit	Title
2.1	Separation and Distribution Agreement, dated as of September 8, 2016, by and between Johnson Controls International plc and Adient Limited (incorporated by reference to Exhibit 2.1 to the registrant's Current Report on Form 8-K filed September 9, 2016)
2.2	Agreement and Plan of Merger by and among Johnson Controls, Inc., Johnson Controls International plc (formerly Tyco International plc) and Jagara Merger Sub LLC, dated as of January 24, 2016 (incorporated by reference to Exhibit 2.1 to the registrant's Current Report on Form 8-K filed January 27, 2016)
2.3	Merger Agreement, dated as of May 30, 2014, between Tyco International Ltd., and Johnson Controls International plc (formerly Tyco International plc) (incorporated by reference to Exhibit 2.1 to the registrant's Current Report on Form 8-K filed on June 4, 2014)
3.1	Memorandum and Articles of Association of Johnson Controls International plc, as amended by special resolutions dated September 8, 2014, August 17, 2016 and March 7, 2018 (incorporated by reference to Exhibit 3.1 to the registrant's Quarterly Report on Form 10-Q filed on May 3, 2018)
4.1	Assumption and Accession Agreement, dated as of November 17, 2014, by Johnson Controls International plc (formerly Tyco International plc) (incorporated by reference to Exhibit 4.1 to the registrant's current report on Form 8-K filed on November 17, 2014)
4.2	Indenture, dated December 28, 2016, between Johnson Controls International plc and U.S. Bank National Association, as trustee (incorporated by reference to Exhibit 4.1 to the registrant's current report on Form 8-K filed on December 28, 2016)
4.3	First Supplemental Indenture, dated December 28, 2016, between Johnson Controls International plc, and U.S. Bank National Association, as trustee, and Elavon Financial Services DAC, UK Branch, as paying agent for the New Euro Notes attaching forms of 2.355% Senior Notes due 2017 (retired; no longer outstanding), 7.125% Senior Notes due 2017 (retired; no longer outstanding), 1.400% Senior Notes due 2017 (retired, no longer outstanding as of November 2, 2017), 3.750% Notes due 2018 (retired; no longer outstanding), 5.000% Senior Notes due 2020, 4.25% Senior Notes due 2021, 3.750% Senior Notes due 2021, 3.625% Senior Notes due 2024, 6.000% Notes due 2036, 5.70% Senior Notes due 2041, 5.250% Senior Notes due 2041, 4.625% Senior Notes due 2044, 6.950% Debentures due December 1, 2045, 4.950% Senior Notes due 2064, 4.625% Notes due 2023, 1.375% Notes due 2025, 3.900% Notes due 2026, and 5.125% Notes due 2045 (incorporated by reference to Exhibit 4.2 to the registrant's current report on Form 8-K filed on December 28, 2016)
4.4	Second Supplemental Indenture, dated February 7, 2017, between Johnson Controls International plc and U.S. Bank National Association, as trustee, attaching form of 4.500% Senior Notes due 2047 (incorporated by reference to Exhibit 4.2 to the registrant's Current Report on Form 8-K filed on February 7, 2017)
4.5	Third Supplemental Indenture, dated March 15, 2017, among Johnson Controls International plc, U.S. Bank National Association, as trustee and Elavon Financial Services DAC, UK Branch, as paying agent, attaching form of 1.000% Senior Notes due 2023 (incorporated by reference to Exhibit 4.2 to the registrant's Current Report on Form 8-K filed on March 15, 2017)
4.6	Fourth Supplemental Indenture, dated December 4, 2017, among Johnson Controls International plc, U.S. Bank National Association, as trustee and Elavon Financial Services DAC, UK Branch, as paying agent (attaching form of 0.000% Senior Notes due 2020) (incorporated by reference to Exhibit 4.2 to the registrant's Current Report on Form 8-K filed on December 4, 2017).
4.7	Miscellaneous long-term debt agreements and financing leases with banks and other creditors and debenture indentures.*

Johnson Controls International plc
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Exhibit	Title
4.8	Miscellaneous industrial development bond long-term debt issues and related loan agreements and leases.*
10.1	Credit Agreement, dated as of March 10, 2016, among Johnson Controls, Inc., the financial institutions parties thereto and JPMorgan Chase Bank, N.A., as administrative agent (incorporated by reference to Exhibit 4.2 to Johnson Controls, Inc.'s Current Report on Form 8-K filed March 16, 2016) (Commission File No. 1-5097)
10.2	Amendment No. 1 dated as of November 1, 2016 to the Credit Agreement, dated as of March 10, 2016, among Johnson Controls, Inc., Johnson Controls International plc, Tyco Fire & Security Finance S.C.A. and Tyco International Finance S.A., the financial parties thereto and JPMorgan Chase Bank, N.A., as administrative agent (incorporated by reference to Exhibit 10.8 to the registrant's Annual Report on Form 10-K for the fiscal year ended September 30, 2017 filed on November 21, 2017)
10.3	Stock and Asset Purchase Agreement, dated as of November 13, 2018, by and between Johnson Controls International plc and BCP Acquisitions LLC (incorporated by reference to Exhibit 2.1 to the Company's Current Report filed November 13, 2018).
10.4	Tax Matters Agreement, dated as of September 8, 2016, by and between Johnson Controls International plc and Adient Limited (incorporated by reference to Exhibit 10.2 to the registrant's Current Report on Form 8-K filed on September 9, 2016)
10.5	Employee Matters Agreement, dated as of September 8, 2016, by and between Johnson Controls International plc and Adient Limited (incorporated by reference to Exhibit 10.3 to the registrant's Current Report on Form 8-K filed on September 9, 2016)
10.6	Tax Sharing Agreement, dated September 28, 2012 by and among Pentair Ltd., Johnson Controls International plc (formerly Tyco International Ltd.), Tyco International Finance S.A. and The ADT Corporation (incorporated by reference to Exhibit 10.1 to the registrant's Current Report on Form 8-K filed on October 1, 2012) (Commission File No. 1-13836)
10.7	Non-Income Tax Sharing Agreement dated September 28, 2012 by and among Johnson Controls International plc (formerly Tyco International Ltd.), Tyco International Finance S.A. and The ADT Corporation (incorporated by reference to Exhibit 10.2 to the registrant's Current Report on Form 8-K filed on October 1, 2012) (Commission File No. 1-13836)

Exhibit	Title
10.8	Trademark Agreement, dated as of September 25, 2012, by and among ADT Services GmbH, ADT US Holdings, Inc., Johnson Controls International plc (formerly Tyco International Ltd.) and The ADT Corporation (incorporated by reference to Exhibit 10.3 to the registrant's Current Report on Form 8-K filed on October 1, 2012) (Commission File No. 1-13836)
10.9	Form of Deed of Indemnification between Johnson Controls International plc (formerly Tyco International plc) and certain of its directors and officers (incorporated by reference to Exhibit 10.4 to the registrant's Current Report on Form 8-K filed on September 6, 2016)
10.10	Form of Indemnification Agreement between Tyco Fire & Security (US) Management, Inc. and certain directors and officers of Johnson Controls International plc (incorporated by reference to Exhibit 10.5 to the registrant's Current Report on Form 8-K filed on September 6, 2016)
10.11	Tyco International plc 2004 Share and Incentive Plan (incorporated by reference to Exhibit 10.3 to the registrant's Current Report on Form 8-K filed on November 17, 2014) (Commission File No. 1-13836)**
10.12	Johnson Controls International plc 2012 Share and Incentive Plan, amended and restated as of March 8, 2017 (incorporated by reference to Exhibit 10.2 to the registrant's Quarterly Report on Form 10-Q filed on May 4, 2017)**
10.13	Johnson Controls International plc 2007 Stock Option Plan (incorporated by reference to Exhibit 10.7 to the registrant's Current Report on Form 8-K filed on September 6, 2016)**
10.14	Johnson Controls International plc 2012 Omnibus Incentive Plan (incorporated by reference to Exhibit 10.6 to the registrant's Current Report on Form 8-K filed on September 6, 2016)**
10.15	Johnson Controls International plc Severance and Change in Control Policy for Officers, Amended and Restated December 7, 2017 (Incorporated by reference to Exhibit 10.2 to the registrant's Current Report on Form 8-K filed on December 11, 2017)**
10.16	Johnson Controls International plc Executive Deferred Compensation Plan, as amended and restated effective January 1, 2018 (incorporated by reference to Exhibit 10.3 to the registrant's Quarterly Report on Form 10-Q filed on May 3, 2018)**
10.17	Johnson Controls International plc Senior Executive Deferred Compensation Plan effective as of January 1, 2018 (incorporated by reference to Exhibit 10.4 to the registrant's Current Report on Form 8-K filed on September 19, 2017)**
10.18	Johnson Controls International plc Retirement Restoration Plan, as amended and restated effective January 1, 2018 (incorporated by reference to Exhibit 10.4 to the registrant's Quarterly Report on Form 10-Q filed on May 3, 2018)**
10.19	Tyco Supplemental Savings and Retirement Plan as amended and restated effective January 1, 2018 (incorporated by reference to Exhibit 10.4 to the registrant's Current Report on Form 8-K filed on September 19, 2017) **
10.20	Johnson Controls International plc Executive Compensation Incentive Recoupment Policy effective September 2, 2016 (incorporated by reference to Exhibit 10.24 to the registrant's Annual Report on Form 10-K for the fiscal year ended September 30, 2016 filed on November 23, 2016)**
10.21	Letter Agreement between Johnson Controls International plc and George R. Oliver dated December 8, 2017 (Incorporated by reference to Exhibit 10.1 to the registrant's Current Report on Form 8-K filed on December 11, 2017).**

Exhibit	Title
10.22	Form of terms and conditions for Option / SAR Awards, Restricted Stock / Unit Awards, Performance Share Awards under the Johnson Controls International plc 2012 Share and Incentive Plan for periods commencing December 6, 2018 (incorporated by reference to Exhibit 10.2 to the registrant's Quarterly Report on Form 10-Q filed February 1, 2019)**
10.23	Form of terms and conditions for Option / SAR Awards, and Restricted Stock / Unit Awards, under the Johnson Controls International plc 2012 Share and Incentive Plan commencing December 6, 2018 applicable to Mr. Stief (incorporated by reference to Exhibit 10.3 to the registrant's Quarterly Report on Form 10-Q filed February 1, 2019)**
10.24	Form of Option/SAR Award for Executive Officers (filed herewith)**
10.25	Form of terms and conditions for Option / SAR Awards, Restricted Stock / Unit Awards, Performance Share Awards under the Johnson Controls International plc 2012 Share and Incentive Plan for fiscal 2018 (incorporated by reference to Exhibit 10.3 to the registrant's Quarterly Report on Form 10-Q filed on February 2, 2018)**
10.26	Form of terms and conditions for Option / SAR Awards, and Restricted Stock / Unit Awards, under the Johnson Controls International plc 2012 Share and Incentive Plan for fiscal 2018 applicable to Messrs. Oliver and Stief (incorporated by reference to Exhibit 10.4 to the registrant's Quarterly Report on Form 10-Q filed on February 2, 2018)**
10.27	Form of terms and conditions for Option / SAR Awards, Restricted Stock / Unit Awards, Performance Share Awards under the Johnson Controls International plc 2012 Share and Incentive Plan for periods commencing on September 2, 2016 (incorporated by reference to Exhibit 10.33 to the registrant's Annual Report on Form 10-K for the fiscal year ended September 30, 2016 filed on November 23, 2016)**
10.28	Form of terms and conditions for Option / SAR Awards, and Restricted Stock / Unit Awards, under the Johnson Controls International plc 2012 Share and Incentive Plan for periods commencing on September 2, 2016 applicable to Messrs. Molinaroli, Oliver and Stief (incorporated by reference to Exhibit 10.1 to registrant's Quarterly Report on Form 10-Q filed on February 8, 2017)**
10.29	Terms of Unit Award under the Johnson Controls International plc 2012 Share and Incentive Plan for Brian J. Stief dated September 14, 2017 (incorporated by reference to Exhibit 10.1 to the registrant's Current Report on Form 8-K filed on September 15, 2017)**
10.30	Terms of PSU Award under the Johnson Controls International plc 2012 Share and Incentive Plan for Brian J. Stief dated September 14, 2017 (incorporated by reference to Exhibit 10.2 to the registrant's Current Report on Form 8-K filed on September 15, 2017)**
10.31	Terms of RSU Award under the Johnson Controls International plc 2012 Share and Incentive Plan for Brian J. Stief dated September 14, 2017 (incorporated by reference to Exhibit 10.3 to the registrant's Current Report on Form 8-K filed on September 15, 2017)**
10.32	Letter Agreement dated as of September 14, 2017 between Johnson Controls International plc and Brian J. Stief (incorporated by reference to Exhibit 10.4 to the registrant's Current Report on Form 8-K filed on September 15, 2017)**
10.33	Form of terms and conditions for Option Awards, Restricted Unit Awards, Performance Share Awards under the 2012 Share and Incentive Plan for fiscal 2016 (incorporated by reference to Exhibit 10.2 to the registrant's Current Report on Form 8-K filed on October 13, 2015)**
10.34	Form of terms and conditions for Option Awards, Restricted Unit Awards, Performance Share Awards under the 2012 Stock and Incentive Plan for fiscal 2015 (incorporated by reference to Exhibit 10.9 to the registrant's Annual Report on Form 10-K for the fiscal year ended September 26, 2014 filed on November 14, 2014) (Commission File No. 1-13836)**

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Exhibit	Title
10.35	Form of terms and conditions for Option Awards, Restricted Unit Awards, Performance Share Awards under the 2012 Stock and Incentive Plan for fiscal 2014 (incorporated by reference to Exhibit 10.9 to the registrant's Annual Report on Form 10-K filed on for the year ended September 27, 2013 filed on November 14, 2013) (Commission File No. 1-13836)**
10.36	Form of terms and conditions for Restricted Stock Units for Directors under the Johnson Controls International plc 2012 Share and Incentive Plan for use beginning in 2018 (incorporated by reference to Exhibit 10.2 to the registrant's Quarterly Report on Form 10-Q filed on May 3, 2018)**
10.37	Form of terms and conditions for Restricted Stock Units for Directors under the Johnson Controls International plc 2012 Share and Incentive Plan for use in 2019 (incorporated by reference to Exhibit 10.2 to the registrant's Quarterly Report on Form 10-Q filed on May 3, 2019)**
10.38	Form of stock option or stock appreciation right award agreement for Johnson Controls, Inc. 2007 Stock Option Plan effective September 20, 2011 (incorporated by reference to Exhibit 10.V to Johnson Controls, Inc.'s Annual Report on Form 10-K for the year ended September 30, 2011 filed on November 22, 2011) (Commission File No. 1-5097)**
10.39	Johnson Controls, Inc. 2012 Omnibus Incentive Plan (incorporated by reference to Exhibit 10.1(a) to Johnson Controls, Inc.'s Current Report on Form 8-K filed January 28, 2013) (Commission File No. 1-5097)**
10.40	Form of option/stock appreciation right agreement for Johnson Controls, Inc. 2012 Omnibus Incentive Plan (incorporated by reference to Exhibit 10.1(c) to Johnson Controls, Inc.'s Current Report on Form 8-K filed November 21, 2013) (Commission File No. 1-5097)**
21.1	Subsidiaries of Johnson Controls International plc (filed herewith)
23.1	Consent of Independent Public Accounting Firm (filed herewith)
31.1	Certification by the Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 (filed herewith)
31.2	Certification by the Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 (filed herewith)
32.1	Certification by the Chief Executive Officer and Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (filed herewith)
101	Financial statements from the Annual Report on Form 10-K of Johnson Controls International plc for the fiscal year ended September 30, 2019 formatted in iXBRL (Inline Extensible Business Reporting Language): (i) the Consolidated Statements of Financial Position, (ii) the Consolidated Statements of Income, (iii) the Consolidated Statements of Comprehensive Income (Loss), (iv) the Consolidated Statements of Cash Flow, (v) the Consolidated Statements of Shareholders' Equity Attributable to Johnson Controls Ordinary Shareholders and (vi) Notes to Consolidated Financial Statements (filed herewith)
*	These instruments are not being filed as exhibits herewith because none of the long-term debt instruments authorizes the issuance of debt in excess of 10% of the total assets of Johnson Controls International plc and its subsidiaries on a consolidated basis. Johnson Controls International plc agrees to furnish a copy of each agreement to the Securities and Exchange Commission upon request.
**	Management contract or compensatory plan.

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