UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, DC 20549

17010300

Form 6-K

REPORT OF FOREIGN PRIVATE ISSUER
PURSUANT TO RULE 13a-16 OR 15d-16 UNDER
THE SECURITIES EXCHANGE ACT OF 1934

For the month of May 2017
Commission File Number 001-16429

ABB Ltd

(Translation of registrant's name into English)

P.O. Box 1831
Affolternstrasse 44
CH-8050, Zurich
Switzerland
(Address of principal executive office)

Indicate by check mark whether the registrant files or will file annual reports under cover of Form 20-F or Form 40-F.

Form 20-F ☒ Form 40-F ☐

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(1): ☒

Note: Regulation S-T Rule 101(b)(1) only permits the submission in paper of a Form 6-K if submitted solely to provide an attached annual report to security holders.

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(7): ☐

Note: Regulation S-T Rule 101(b)(7) only permits the submission in paper of a Form 6-K if submitted to furnish a report or other document that the registrant foreign private issuer must furnish and make public under the laws of the jurisdiction in which the registrant is incorporated, domiciled or legally organized (the registrant's "home country"), or under the rules of the home country exchange on which the registrant's securities are traded, as long as the report or other document is not a press release, is not required to be and has not been distributed to the registrant's security holders, and, if discussing a material event, has already been the subject of a Form 6-K submission or other Commission filing on EDGAR.

This report contains ABB Ltd's Annual Report for the year ended December 31, 2016.

Exhibit	
99.1	Annual Report for the year ended December 31, 2016.

SIGNATURES

Pursuant to the requirements 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.

ABB LTD

By: /s/ Alanna Abrahamson - Haka
Name: Alanna Abrahamson - Haka
Title: Group Senior Vice President and Head of Investor Relations

By: /s/ Richard A. Brown
Name: Richard A. Brown
Title: Group Senior Vice President and Chief Counsel Corporate & Finance

Date: May 23, 2017

ANNUAL REPORT 2016

Committed to unlocking value

ABB
the pioneering technology leader

What
Offering

Pioneering technology

Products | Systems | Services & Software

For whom
Customers

Utilities | **Industry** | **Transport & Infrastructure**

Where
Geographies

Globally

Asia, Middle East and Africa | Americas | Europe

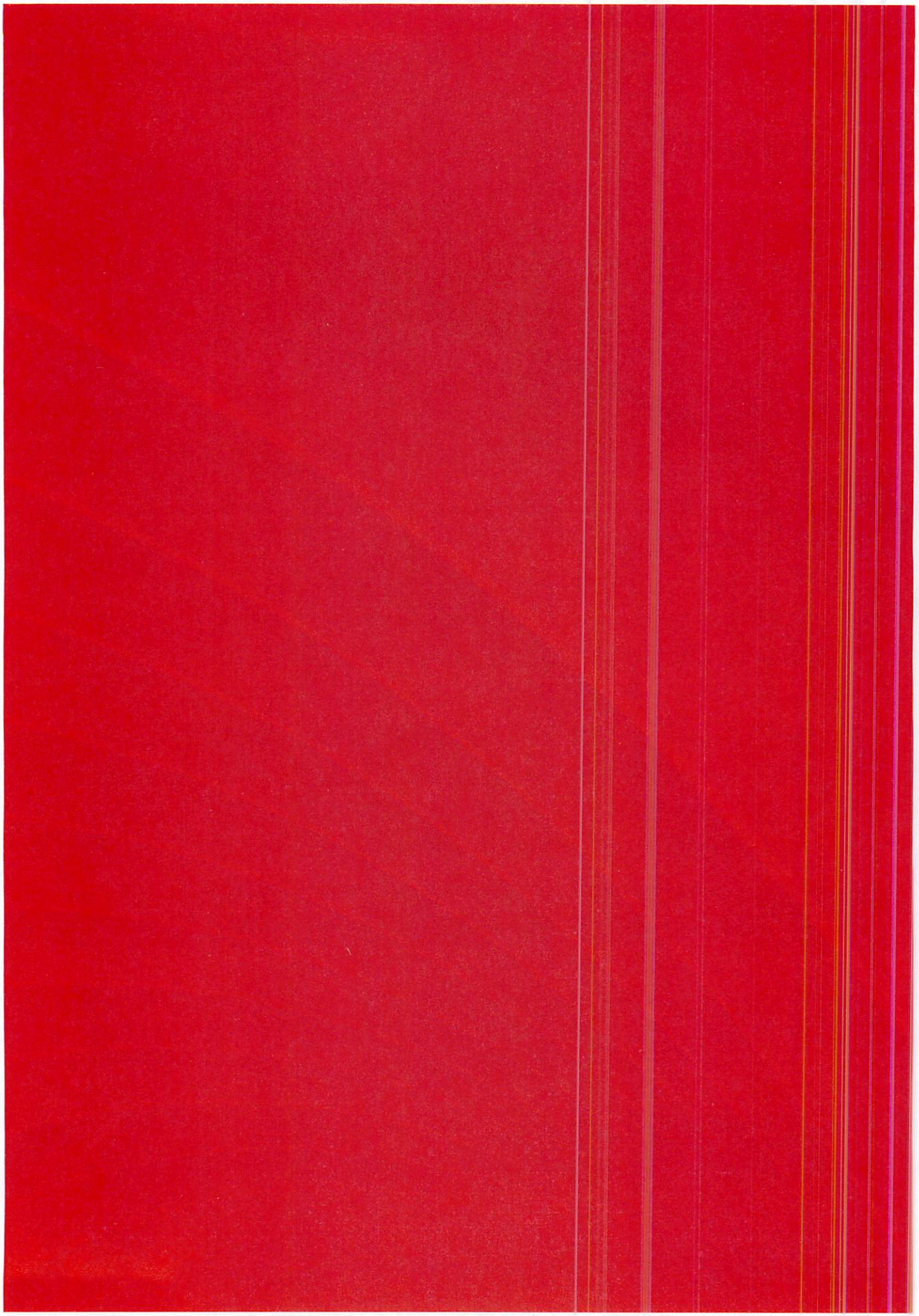
Revenue ~$34 bn | Countries ~100 | Employees ~132,000

ABB at a glance
Committed to unlocking value

ABB is a pioneering technology leader in electrification products, robotics and motion, industrial automation and power grids, serving customers in utilities, industry and transport & infrastructure globally. Continuing more than a 125-year history of innovation, ABB today is writing the future of industrial digitalization and driving the Energy and Fourth Industrial Revolutions.

ABB operates in more than 100 countries with about 132,000 employees.

abb.com



Annual Report 2016
Contents

CHAIRMAN AND CEO LETTER

Dear Shareholders, Customers, Partners and Employees:

As we compose this letter, we realize that 2016 has been a historic year – both for ABB as well as the world at large. ABB delivered solid performance in 2016, and we made steady progress in transforming the company into a leaner, more customer-focused, digital technology leader. There were many rewarding moments, and ABB earned its share of success.

On the macroeconomic front, extraordinary geopolitical forces emerged, challenging established orders and throwing the world's post-World War II economic architecture into turmoil. In the aftermath of this turbulence we recognize that the journey forward for a large, multinational organization such as ABB demands deliberate, thoughtful navigation. At the same time, we can clearly see the value of a bold vision as we invest in new ways to do more for our customers, partners and employees – and continue to support the growth of economies and ABB's communities around the world.

To maintain leadership, technology companies must pay constant attention to the changes in the technological landscape and adapt to take advantage of the latest trends – it is often said they must see the future first. As a company with a heritage of more than 125 years, ABB has successfully learned to stay abreast of the latest technologies. Today ABB sees two simultaneous developments that will guide our strategy going forward – the Energy Revolution and the Fourth Industrial Revolution.

The Energy Revolution

The economics of electricity generation, transmission, distribution and consumption have changed dramatically in the past two decades, primarily due to the rise of economically viable renewable energy sources, such as solar and wind power. What used to be a simple, linear process of electricity generation-transmission-consumption has become an exponentially more complicated system. In the old framework, electricity in the form of alternating current was generated by a turbine using fossil fuels or hydropower. That electricity was typically transmitted over a distance of a few dozen kilometers through power lines, usually after having been stepped up to a higher voltage to avoid losses. Finally, near the point of consumption, the electricity was stepped down through transformers for use in homes and industry.

Today the situation is much more complex. Electricity is generated not only by large conventional power plants but also by distributed solar panels and windmills. Many houses have solar panels with battery storage and have become, in effect, mini-power plants. On sunny days, they generate more than enough electricity for their own use, and feed energy back into the local grid. In countries like Germany, we see on some days negative pricing when the sun is shining – a development few could have predicted five years ago.

The other issue with electricity from renewables is that it is often generated in large fields far from where it is consumed. For instance, wind farms in the North Sea and solar panels in the Atacama Desert send power to European and South American cities, respectively. High-voltage direct current (HVDC), pioneered by ABB, can transmit this distributed energy at scale with low rates of loss. With its software and digital technology, the company is now a leader in HVDC, enabling and optimizing national grids in the Americas, Europe and Asia.

A few ABB Energy Revolution highlights from 2016:

- We are working with our customers to bring the benefits of electricity to everyone on the planet, as more than 1.2 billion people remain in the dark today, according to the World Bank. During the last month of 2016 alone, ABB received orders worth more than $840 million to bring HVDC power to hundreds of millions of people in India and Brazil. Our microgrid technology – which can provide standalone power in remote areas or integrate such renewables as solar, wind, and hydropower into existing power grids – is accelerating human progress in sub-Saharan Africa and Asia, among other regions.
- The high-efficiency ventilation and electrification systems that ABB supplied for the new Gotthard Base Tunnel under the Alps, the world's longest railway tunnel, defined the current state of the art for major infrastructure projects.
- ABB's partnership with Solar Impulse 2, which

PETER VOSER
CHAIRMAN OF THE BOARD

ULRICH SPIESSHOFER
CHIEF EXECUTIVE OFFICER

completed the first round-the-world, solar-powered aircraft flight last July, symbolizes our commitment to stretching the limits when it comes to providing enough reliable, efficient energy to run the world without consuming the earth.
- In another small example, our flash-charging technology is allowing zero-pollution electric buses connecting Geneva's airport to the city's suburbs to recharge their batteries in just 15–20 seconds.

With our strong heritage in power technologies and global market penetration, it is accurate to say that anywhere there is electricity, ABB has likely been at work. Today, ABB is making smarter, greener grids possible for the world as a whole, and is a key player in major energy infrastructure buildouts globally. We will continue to invest in this market and related technologies.

The Fourth Industrial Revolution

Digital technology and connectivity has changed the world. Manufacturing is being transformed as digitalization and connectivity transform machines and factories worldwide. This meshing of the digital world with machines as the Internet meets production is what we call the Fourth Industrial Revolution.

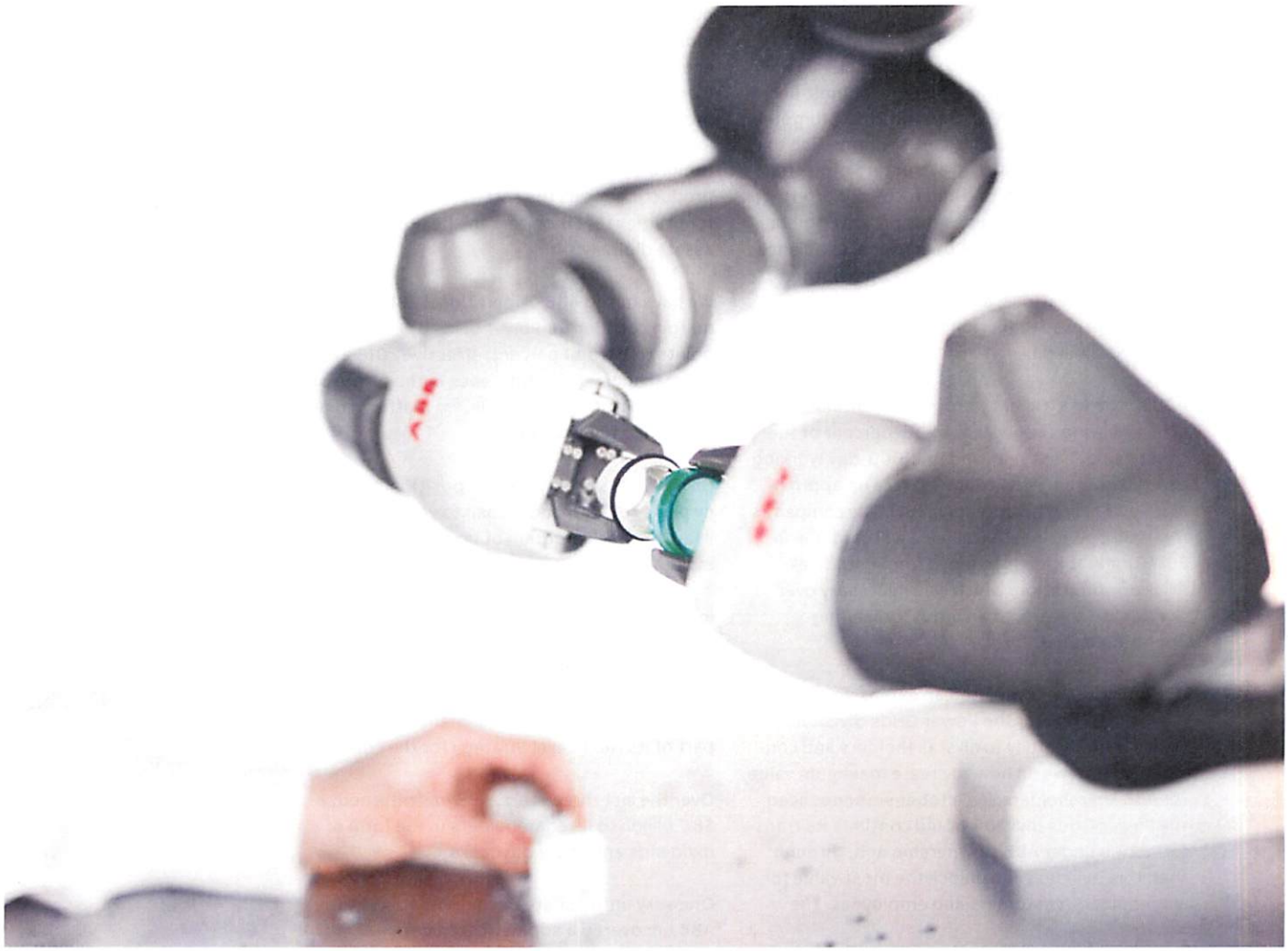
The mindset and business model that manufacturers will need to succeed in the future will be different. For one thing, there will be a greater need for the type of industrial digital services ABB is building today. By the end of this decade, more than 20 billion devices will be connected to the Internet – and this number does not include computers or smartphones. The stream of data these connected devices will generate will be a rich source of business intelligence. There is enormous opportunity in analyzing that data and then feeding the resulting digital insights back into machines and systems to make them more efficient, powerful and reliable.

Automation, robotics, artificial intelligence and machine learning have resurrected fears of job losses. We see a significant need for responsible leadership today from the private sector, politicians and academics – and at ABB, we are working to do our part. Our viewpoint is that the world of jobs will fundamentally change due to digital technologies – but we will never be short of work. In the future, in particular, there will be an increased need for software-differentiated services.

ABB started moving its business focus from selling pure hardware to providing digital services and software a number of years ago. A good example of successful transformation is our robotics business. In the past we simply sold individual robots – robots by the kilogram, if you will. Today, our robots are designed to solve business problems. It is a solution-oriented approach, delivering what customers need. Each robot a customer buys can be networked, and send data to a central monitoring system. Pooling data from thousands of robots allows us to develop best practices for such things as the most efficient and productive arm movement, for instance. We can then share the learning with all connected robots through networked software.

A few Fourth Industrial Revolution highlights from 2016:
- In 2016, ABB launched its smart sensor, which can be attached to the hundreds of millions of electric motors now in use globally, connecting the motors to the Internet of Things through cloud-based software to enable transcontinental industrial digitalization. ABB's new sensor cuts motor downtime by 70 percent, extends lifespans by 30 percent, and reduces energy consumption by up to 10 percent – potentially saving energy equivalent to the output of 100 large power plants.
- We are leading the industry in "co-bots," collaborative robots that work with – rather than replace – humans, to improve safety, boost productivity and free people from dirty, dangerous work in mines and factories while allowing them to do more valuable, rewarding jobs. Our

Our accelerating transformation through 2016 and into the new year makes us confident that ABB has the portfolio of businesses and the leadership team to create superior value for our customers, shareholders and employees.



robots use machine learning and artificial intelligence and can perform tasks, such as solving Rubik's cube in seconds. In 2016, ABB's YuMi collaborative robot won the Invention and Entrepreneurship in Robotics and Automation Award at Automatica, the leading tradeshow for robotics and automation.

To take advantage of the latest developments in the market and to better serve its customers, ABB has changed its divisional structure into four market-leading divisions: Electrification Products, Robotics and Motion, Industrial Automation and Power Grids. The divisions are being empowered as entrepreneurial units within ABB, and benefit from sales collaboration orchestrated by regions and countries as well as from the group-wide digital offering; ABB's leading G&A structure; common supply chain management; and corporate research. ABB will continue to strengthen its divisions through active portfolio management. This includes pursuing strategic additions, transforming business models and pruning non-core businesses as well as business partnerships.

Financial highlights

ABB performed satisfactorily in 2016. The company finished the year in a solid financial position, having delivered consistent margin improvements and further strengthened its ability to generate cash.

Financial highlights for the full year 2016:

- Orders were down at $33.4 billion
- Revenues on a comparable basis were stable at $33.8 billion
- Operational EBITA margin increased by 50 basis points
- Basic earnings per share increased 2 percent and operational earnings per share was 4 percent higher (constant currency)
- Free cash flow increased to $3.1 billion, 161 percent of net income

The management has focused on running the company with discipline and has maintained its commitment to generating shareholder value. Sustained geopolitical and macroeconomic uncertainty in the U.S. and E.U. through 2016 prompted customers to adopt a wait-and-see approach to investing in large-scale infrastructure projects. While working to sharpen and focus our offerings across industries, ABB used this period of global uncertainty to strengthen operational excellence. Our white-collar productivity program outperformed expectations, allowing the company to increase its cost-reduction target by 30 percent, saving $1.3 billion.

ABB's regular efficiency programs continued to achieve savings equivalent to 3-5 percent of the cost of sales each year, and its 1,000-day working capital program is on course to free up approximately $2 billion by the end of 2017. The company's focus on operational excellence will continue in 2017. Our ambition is to move from initiative-driven optimization, which was necessary over the past two years, to an industry-leading operating model.

During 2016, we completed an extensive strategic portfolio review for the Power Grids division. We listened carefully to all stakeholders and considered all views on how to create maximum value for ABB shareholders. In October we announced the Power Grids division would continue its transformation under ABB's ownership and, through that, this business can unlock the most value for shareholders, customers and employees. The outlook for the utilities industry is improving. India and China are making big investments in energy infrastructure and Power Grids will benefit from that spending. In addition, the changes brought about by the Energy and Fourth Industrial Revolutions are good for Power Grids as there is more demand created for HVDC and other ABB products, such as the software-enabled system for utilities that monitors the health of their assets digitally.

We have raised ABB's operational EBITA target margin corridor for Power Grids by 200 basis points to 10 to 14 percent, effective 2018, reflecting management's confidence in the future of the division. For ABB as a whole, we reaffirmed our 2015-2020 financial targets.

Given ABB's strong financial position, the company plans to return more cash to you with a new share buyback program of up to $3 billion from 2017 through 2019.

In addition, the Board of Directors is proposing to raise the dividend to CHF 0.76 a share at the 2017 annual general meeting. This is in line with the dividend policy of a steadily rising dividend that ABB's management has outlined as part of its Next Level Strategy for the company.

Over the last three years, ABB has returned $8.7 billion to its shareholders in the form of dividends and share buybacks.

One very unfortunate development was that ABB uncovered a sophisticated criminal scheme involving significant embezzlement and misappropriation of funds in its South Korean subsidiary. The company immediately launched a thorough investigation, involving internal and external parties, which is progressing well. The company has checked and reconfirmed the balances of its global bank accounts and can confirm that this situation is limited to South Korea. ABB has a zero-tolerance approach to unethical behavior and maintains the highest standards regarding integrity and ethical business practices. We have started implementing disciplinary consequences and will continue to do so as appropriate. Due to the investigation, ABB had to postpone the publication of its 2016 annual report.

ABB's digital focus

Both the Energy Revolution and the Fourth Industrial Revolution are creating new business opportunities, and with them, new business models. These parallel revolutions are a good platform for the company to strengthen its lead in a competitive global marketplace through

The mindset and business model that manufacturers will need to succeed in the future will be different. For one thing, there will be a greater need for the type of industrial digital services ABB is building today.

software and services for our customers in energy, utilities, transport and infrastructure. The company is taking a quantum leap in digital solutions with the launch of ABB Ability. ABB Ability brings together our entire portfolio of digital solutions and services, making them fully accessible and adaptable to all our customers. Interconnecting things, services and people digitally – the so-called Internet of Things, Services and People – is the basis for data analysis, boosts productivity and safety, enhances reliability, and saves energy and costs. Given the size of ABB's installed base in the Internet of Things, Services and People – 70 million connected devices and 70,000 control systems across a range of industries – we see the potential to strengthen our position as a trusted partner to our customers as the Energy and Fourth Industrial Revolutions progress further, because they already know us and trust us to deliver the right technological solutions.

We have appointed an experienced Chief Digital Officer and created a centralized, dedicated digital organization to develop and deliver digital solutions to all our marketplaces on a global basis together with our businesses. The company is in the process of integrating digital solutions and technology into all of ABB's future products, systems, services and business models (see page 22).

Strengthening leadership

ABB strengthened its management team in 2016 to drive and support its ongoing transformation. In addition to new leadership within the Discrete Automation and Motion (DM) division and the appointment of a new Chief Financial Officer, ABB's Board of Directors added four new members elected at the company's last annual general meeting. These new members bring valuable expertise in digitalization, software, finance, R&D, technology and manufacturing. With these additions, ABB's board is now comprised of members from ten countries representing a broad range of industries.

Outlook for the year ahead

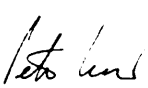
Geopolitical uncertainties persist and the market outlook for 2017 remains challenging. It is important to note that when ABB identifies a market opportunity by industry or geography, we commit for the long term. The uncertainty of 2016 did not deter us from continuing our company-wide transformation or from initiating a vital new focus on digital and customer-centricity. We are continuing to invest heavily in research and development and innovation to maintain our technological leadership. With growing momentum across ABB's four streamlined entrepreneurial businesses the company will address customer needs in the Energy and Fourth Industrial Revolutions in a focused and agile way, with digital solutions, services and products that truly solve customer problems.

Summary

The worldwide marketplace is demanding, but at the same time rich with promise and opportunity as the Energy Revolution and Fourth Industrial Revolution continue to accelerate global change. Our accelerating transformation through 2016 and into the new year makes us confident that ABB has the portfolio of businesses and the leadership team to create superior value for our customers, shareholders and employees. ABB would not exist without its dedicated and tireless employees, and their commitment and hard work remain instrumental to its success. We would like to thank them for their commitment and many accomplishments in the past year. Similarly, the ongoing support of ABB's customers and partners makes all the company's achievements possible. Finally, the continued trust that you, ABB's shareholders, have bestowed on the company is the foundation upon which this enterprise has been built.

We are honored to lead this company, and know there is continued exciting and hard work to do to realize ABB's full potential. Today's ABB is energized and focused on the opportunities that lie ahead for its customers and partners. Let's write the future. Together.

Sincerely,



Peter Voser
Chairman of the Board of Directors

Ulrich Spiesshofer
Chief Executive Officer

March 10, 2017

Highlights 2016

—

Increased operational EBITA margin by 50 basis points to 12.4 percent in a continued challenging market environment

—

Basic earnings per share increased 2 percent[1] and operational earnings per share[2] was 4 percent[3] higher

—

Accelerating momentum in operational excellence through successful savings programs and strong net working capital management

—

Delivered strong cash performance, with free cash flow demonstrating ABB's consistent cash generation throughout the year

—

Returned $2.9 billion in cash to shareholders through dividend payment and share repurchase. Board proposes eighth consecutive dividend increase

—

Launched stage 3 of Next Level strategy to build on successful transformation as well as strengthening position as pioneering technology leader and digital champion

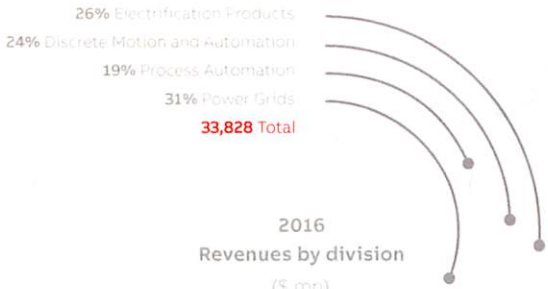
—

Successful launch of ABB Ability™ combining ABB's portfolio of digital solutions across all customer segments

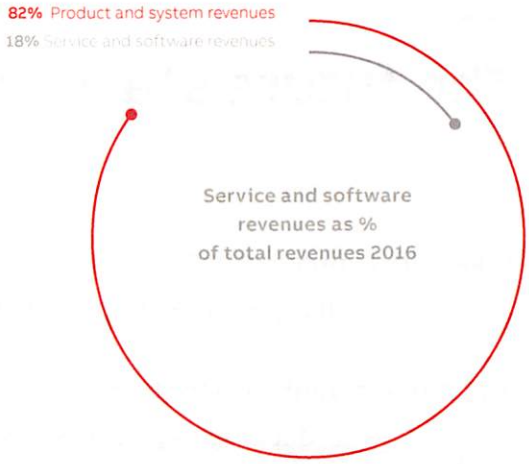
Key Figures 2016

$ in millions unless otherwise indicated	FY 2016	FY 2015
Orders	33,379	36,429
Revenues	33,828	35,481
Operational EBITA[2]	4,191	4,209
as % of operational revenues	12.4%	11.9%
Net income	1,899	1,933
Basic EPS ($)	0.88	0.87
Operational EPS[2] ($)	1.29	1.26
Cash flow from operating activities	3,843	3,818
Free cash flow	3,065	3,019
Cash return on invested capital (CROI)	13.8%	13.4%

(1) Earnings per share growth rates are computed using unrounded amounts.
(2) For definitions of non-GAAP measures, see "Supplemental information" on page 230.
(3) In constant currency using 2014 exchange rates.



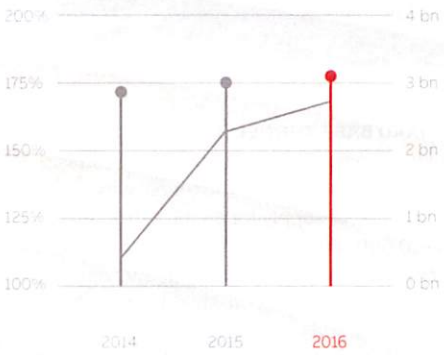
2016
Revenues by division
($ mn)



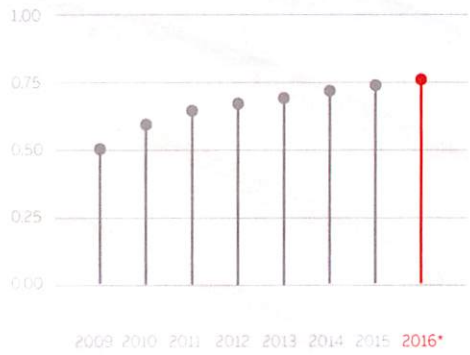
Europe, 34% Americas, 28% AMEA(1), 38%

2016
Orders by region

(1) Asia, Middle East and Africa



2014-2016
Free cash flow and conversion rate
($ bn and %)



2009-2016
Dividend payout (CHF per share)

* proposed

The future starts today

Take a look around. Wherever you see modern technology, reliable power supplies, efficient road transport, and remarkable rail solutions, you're likely to be looking at ABB technology. Not that it is always visible. Most of it is at work inside buildings and vehicles, where it drives progress. The future we envisage is already reality in many projects and places. It makes our cities more livable and our transport more attractive, and it strikes a better balance between what people want and the needs of a sustainably developed environment.

THE GOTTHARD BASE TUNNEL is the world's longest railway tunnel. The latest energy-efficient technologies from ABB provide the tunnel with ventilation and power supply for its infrastructure and for over 10,000 orientation lights. Our company helps in many other ways to ensure that Switzerland, a country famous for its railways, keeps setting international standards. That includes locomotives as well as infrastructure, and encompasses maintenance, upgrades and retrofitting. The EC250 high-speed train, which is due to launch in 2019, will be yet another railway pioneer, and will incorporate ABB converters.

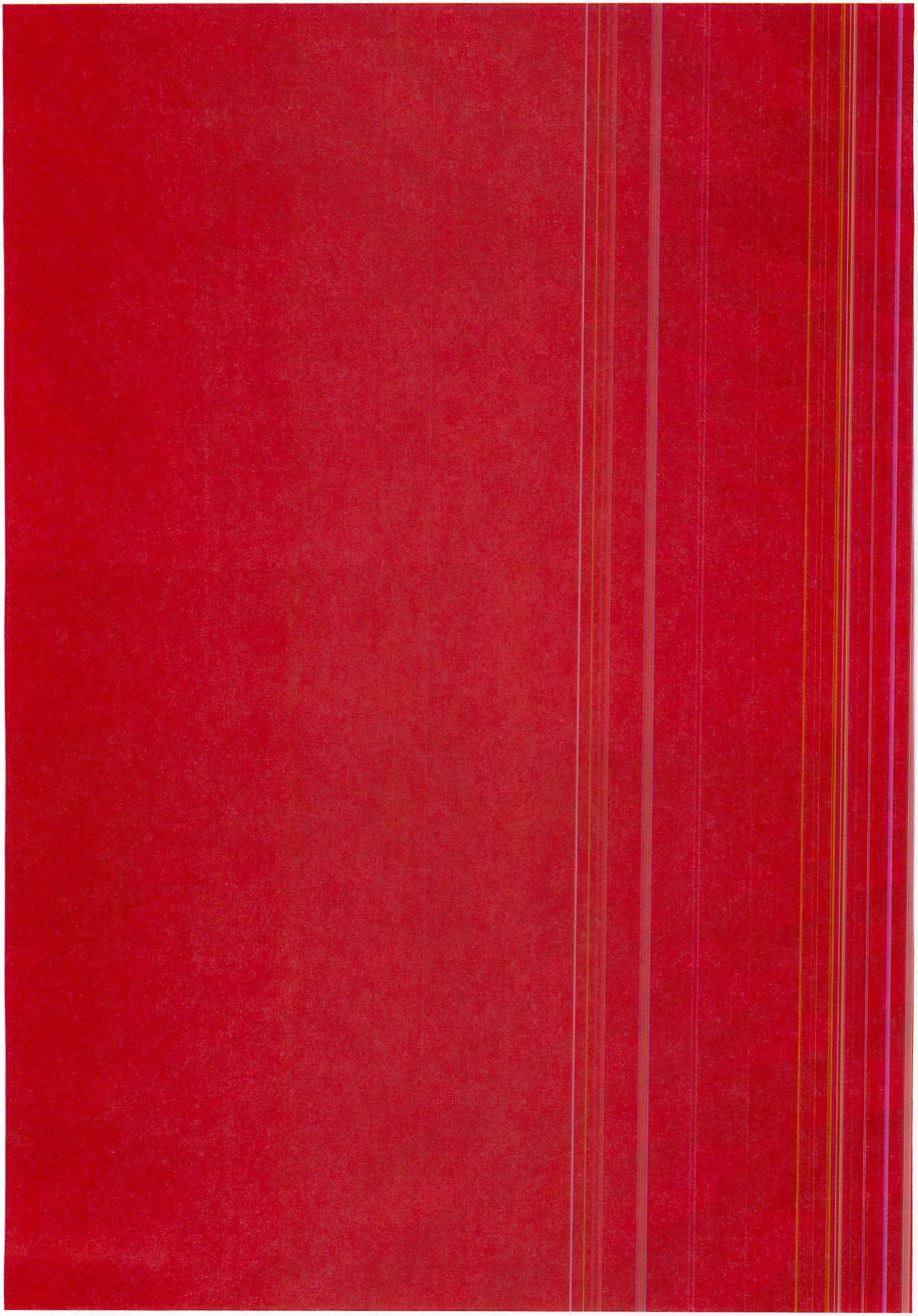
FIFTEEN SECONDS is all the TOSA fully electric bus needs to replenish its batteries. It can recharge using pivoting contacts on its roof during a regular stop. It drives without emissions and without noise. The TOSA can carry 133 passengers; it connected Geneva Airport to the Palexpo exhibition center from May 2013 to the end of 2014 – to the delight of passengers and operators. Geneva's Line 23 is now being equipped with TOSA buses.

LIKE A JULES VERNE STORY

That was how Bertrand Piccard's idea sounded: to fly around the world in a solar-powered plane without a drop of fuel. He spent 12 years together with a 60-man team of partners to prepare for the 17-stage flight. To circle the globe he alternated with André Borschberg as the pilot of Solar Impulse 2, landing 505 days later in Abu Dhabi where he had set out on the record flight. Four twin-bladed tractor propellers were driven by solar power, which was collected during the day by 11,628 photovoltaic cells affixed mainly to the 63.4-meter-long wings. This high-flying dream provides very real evidence of what renewable energies can achieve when used intelligently – by courageous people, it should be added.

ABB AND THE INTERNET OF THINGS, SERVICES AND PEOPLE

German Chancellor Angela Merkel and former US President Barack Obama were the first to experience ABB's groundbreaking new sensor during their visit to the Hannover Fair in early 2016. As guests of honor at the world's largest industrial trade show, they were shown how ABB's smart sensor allows electric motors for the first time to report their condition and can reduce downtime by up to 70 percent.



01
Strategy

Attractive markets
Driving today's technological revolutions

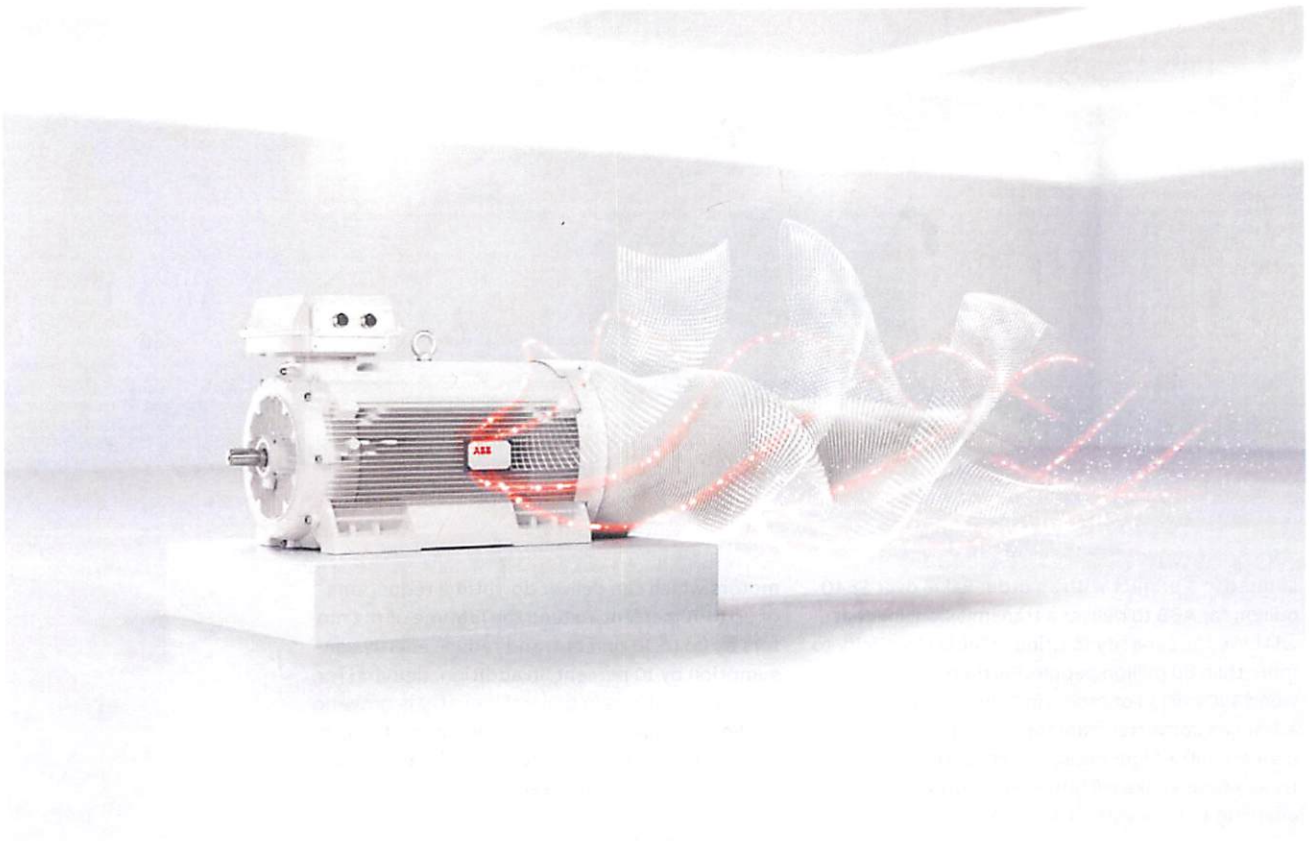
ABB's customer markets are undergoing a paradigm shift as internet-based technologies take hold in the industrial sector, revolutionizing the production and supply of energy as well as of goods and services.

Our markets
As a pioneering technology leader serving the utilities, industry, and transport & infrastructure markets, ABB is at the heart of the energy and fourth industrial revolutions. The rise of renewable energy is dramatically increasing the complexity of the grid, as the number of feed-in points from solar and wind sources multiply and transmission distances lengthen thus driving the energy revolution. As the contribution of renewables in the energy mix increases, supply becomes less predictable, driving the need for more equipment and technology to balance demand and supply in the grid. At the same time, the shift from industrial to service-based economies is changing consumption patterns, making them more prone to peaks, and new consumer types, including prosumers, and electric vehicles are already having an impact on grid performance in some parts of the world. These changes are increasing complexity in the grid. At the same time, demand for electricity is rising, driven by significant increases in the volume of data and the accelerating take-up of electric vehicles. The impact of digitalization is accelerating as more and more devices and systems are equipped with sensors and connectors. With the substantial increase in processing power, it is now possible to remotely monitor the health of equipment, machines and robots, and through state-of-the-art performance modelling, to diagnose potential problems and to intervene before an interruption of service.

Utilities Market
ABB focuses on the changing needs of utility customers with its complete offering for transmission and distribution. The ongoing shift in the electricity value chain such as the growth in renewable power generation creates opportunities for companies that are able to deliver intelligent solutions to the challenges customers face with regard to increased grid complexity and stability. Renewables are also making stand-alone grids possible for remote, off-grid communities. Currently, these must be equipped with back-up (diesel) generators to cope with intermittent supply, but innovations in power storage technology promise to dramatically expand the application of these micro-grids, which are another key focus for ABB.

With the significant shift in the electricity value chain, integration of renewables, micro-grids and automation solutions to control the flow are key growth drivers for the future. The grid of tomorrow will increase in complexity as there will be numerous feed-in points and a shift from uni-directional to bi-directional electricity flow.
At the same time, market de-regulation and re-regulation continues. Generation, transmission and distribution are being unbundled, long-standing monopolies now have competitors and new entrants (e.g. pension funds, insurance funds, project developers) are investing in the sector. Many traditional utilities are being forced to reinvent themselves; some are refocusing on renewables while others on providing additional services to the consumers they serve. These new grid challenges provide numerous opportunities. More than 30 percent of the market we operate in are in these high-growth segments, such as grid automation, high-voltage direct current (HVDC), software and micro-grids. Our solutions help utilities, which generally are public or government-owned entities and tend to be more consolidated in nature, address these challenges.

Utilities remained cautious in 2016 but continued to make selective investments in infrastructure-critical power transmission projects. For example, ABB has teamed up with India's national electricity grid operator Power Grid Corporation of India



Attractive customer dynamics

Utilities

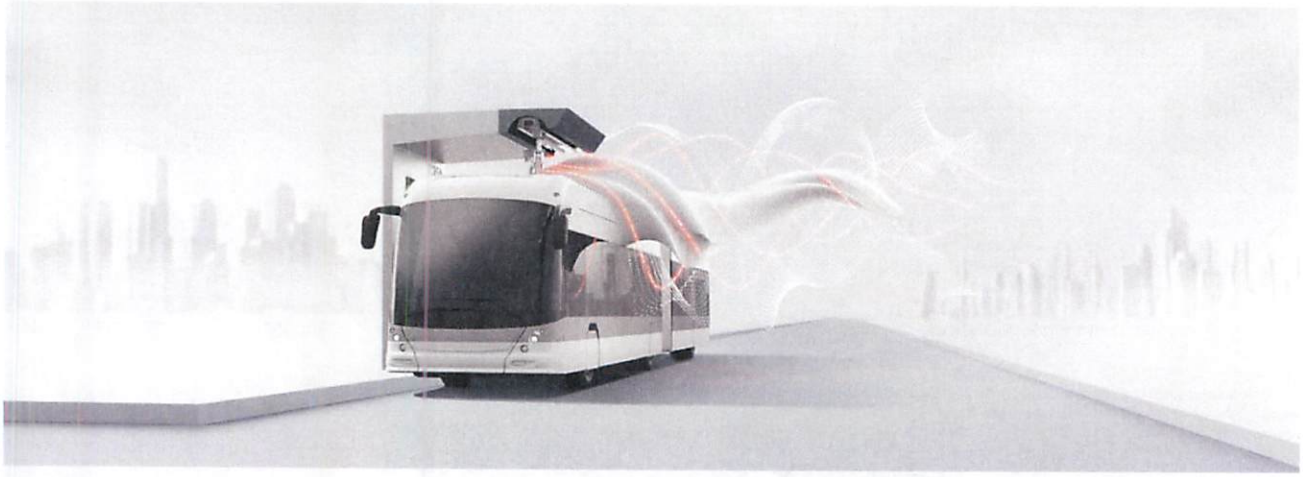
- ~$7 trillion renewables investment next 25 years
- 300 HVDC projects planned
- $5 bn microgrid market 2025
- ~50% CAGR stationary energy storage (GWh)

Industry

- 26 bn things connected by 2020
- 18% annual growth machine-to-machine industry by 2020
- 2.6 mn industrial robots by 2019 from 1.2 mn today
- ~30% CAGR cloud computing infrastructure and platforms

Transport & Infrastructure

- >63% urban population by 2050
- Smart home market to triple to ~$36 bn in 2020
- Energy management market to more than double to $44 bn by 2020
- >50% of cars sold in 2030 will be electric



Limited in a project with an order value over $640 million for ABB to deliver a transmission link that will have the capacity to bring reliable electricity to more than 80 million people. Furthermore, ABB won $300 million of orders in China to supply advanced converter transformers for two long-distance ultra-high-voltage direct current (UHVDC) transmission links setting a new world record by enabling 10 gigawatts (GW) of power to be transmitted at 800 kilovolts (kV). Additionally, in China ABB won orders of more than $300 million to deliver key equipment for a 1,100 kV UHVDC power link. ABB also won a $250 million order to deliver a 220 kV high-voltage submarine cable system to Danish utility DONG Energy.

Industry Market

On the industry side, we serve factories all around the world from discrete to process industries. Energy efficiency and productivity improvements are the hallmarks of ABB's offerings in this customer segment. Industry customers are diverse in nature and may be publicly traded or privately held companies. Our energy efficient products, systems and services reduce consumption and therefore electricity cost and carbon emissions, while our automation systems increase productivity, quality and efficiency, and keep workplaces safe. Since industrial customers have increasingly been focusing on enhancing energy efficiency and asset productivity, our offering is a key value proposition for them. Demand from industrial customers in 2016 varied by sector and region. However, low oil prices resulted in a continued constraint in spending by oil and gas customers. The need for cutting-edge solutions to increase efficiency and to use renewable power generation to lower the environmental impact continued to be important demand drivers. In this context, we launched ABB's smart sensor solution for electric motors which can deliver downtime reductions of up to 70 percent, extend the lifetime of the motors by up to 30 percent, and reduce energy consumption by 10 percent. In addition, demand for robotics solutions in general industry is growing as there is an increased need for automated processes and productivity. YuMi, ABB's collaborative robot, helps meet this need.

Transport & Infrastructure Market

Alongside ABB's offering for utilities and industry, we provide solutions for transport & infrastructure customers. As transport customers focus on energy efficiency and reduced operating costs, our offerings are key. Another key growth driver for this customer segment is the move to increased electric transportation as well as urbanization and growth in data centers. Our expertise has given us the edge when it comes to providing clean and reliable power solutions for transport networks and infrastructure.

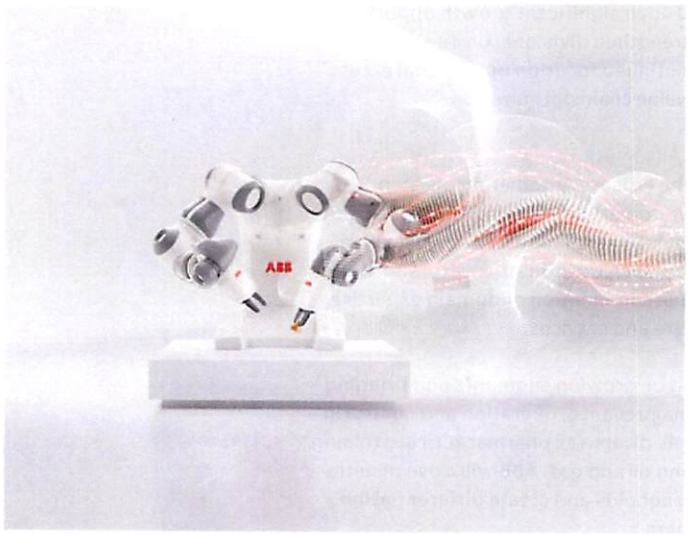
Demand from the transport & infrastructure market in 2016 was mixed, with continued demand for energy efficient solutions, particularly in data centers, rail and electric mobility. For example, ABB continued its collaboration with Stadler Rail to deliver its newest traction equipment for reliable and energy-efficient trains and has received an order to provide additional fast chargers for hybrid electric buses in the city of Luxembourg. Demand for specialty vessel solutions remained strong and ABB won orders to supply the complete power, propulsion and automation package for a series of new cruise vessels being built by MV WERFTEN. ABB's proven Azipod propulsion solutions will improve the safety and efficiency of the new generation of ships.

Delivered
Next Level strategy – stages 1 and 2

In 2014, ABB launched its Next Level strategy aimed at accelerating sustainable value creation and laying the foundations for future growth. At the time, the company was facing pressing operational issues, and needed to develop a new growth mindset, simplify its organization and strengthen its customer focus.

Three focus areas were defined to address these challenges: profitable growth, relentless execution and business-led collaboration, and for each focus area, clear action plans were put in place.

Profitable growth
To drive a growth mindset, ABB adopted its "PIE" formula of penetration, innovation and expansion, with a focus on greater competitiveness, organic growth, and reducing risks by aligning business models more closely with ABB's core competencies. Organic growth was complemented with strategic acquisitions and partnerships with other leading global companies, such as Philips, Hitachi and most recently Microsoft. Today, ABB is well positioned for growth, with four market-leading divisions and a world-class portfolio of solutions and services.



Relentless execution
A key objective of the Next Level strategy is to achieve world-class operational excellence at all levels of the company. In stages 1 and 2, the focus was on turning around underperforming units, improving white-collar productivity and cash performance, and improving accountability and performance of both teams and individuals.

By 2016, Power Grids delivered and continued its journey of transformation; the white-collar productivity savings program had outperformed expectations, allowing its cost reduction target to be increased by 30 percent to $1.3 billion; and the working capital program was on course to free up approximately $2 billion by the end of 2017. On top of that, ABB's regular cost-savings programs continued to achieve savings equivalent of 3-5 percent of cost of sales each year, and a new performance-based compensation model had been implemented for 70,000 of the company's 132,000 employees.

Business-led collaboration
Finally, over the past two years, ABB has dramatically simplified its organizational setup, reducing the number of global regions from eight to three, and the divisions from five to four. In addition, many business units have been relocated closer to their key markets and customers, leading to a far more responsive, customer-focused organization.

The work is not over, but today ABB is a simpler, faster and more agile company, positioned at the heart of the energy and fourth industrial revolutions, and ready to take advantage of the exciting growth opportunities that are emerging across its markets.

Committed to unlocking value
Next Level strategy – stage 3

On October 4, 2016, ABB launched stage 3 of its Next Level strategy to unlock additional value for shareholders and customers.

Building on the focus areas of profitable growth, relentless execution and business-led collaboration, stage 3 consists of four actions:

1. Driving growth in four market-leading entrepreneurial divisions
2. Quantum leap in digital
3. Accelerating momentum in operational excellence
4. Strengthening the global ABB brand

Driving growth in four market-leading entrepreneurial divisions

A key objective of ABB's Next Level strategy is to be #1 or #2 in all businesses, something the company achieved with the focusing of its divisional structure into four market-leading divisions effective January 1, 2017: Electrification Products, Robotics and Motion, Industrial Automation and Power Grids. With this structure, ABB's divisions are positioned as partners of choice in their respective markets.

In stage 3 of the Next Level strategy, the divisions will drive growth as entrepreneurial units within ABB, in line with the company's values of "ownership and performance" (see page 30). This is reflected in an enhanced performance and compensation model, which focuses on individual accountability and responsibility.

The divisions benefit from sales collaboration orchestrated by ABB's regions and countries, as well as from the group-wide digital offering; ABB's leading G&A structure; common supply chain management; and corporate research centers.

ABB will continue to strengthen its divisions through active portfolio management. This includes pursuing strategic additions, transforming business models and pruning non-core businesses.

Electrification Products

As #2 in the market for the electrification of consumption points, the Electrification Products division brings together all electrification components in a one-stop shop for customers. The division now includes the solar inverters, electric vehicle chargers and power protection activities, which were transferred from the former Discrete Automation and Motion division.

Demand for electricity consumption is growing faster than overall energy demand, as more people gain access to electricity and the take-up of electric vehicles accelerates. This presents significant opportunities to digitalize and innovate around our current offerings.

Robotics and Motion

The newly shaped Robotics and Motion division, based on ABB's Discrete Automation and Motion portfolio, is focused on the fast-growing robotics segment, and on industrial motors and drives where ABB is #1 globally.

ABB's robotics business, currently #2, has the clear aim of becoming the market leader, while the motors and drives businesses will focus on fast-growing segments and moving into light industry and emerging growth areas such as Asia.

Intelligent services and a leading digital offering are already a strong pillar of the division's performance and open significant growth opportunities. ABB will strengthen divisional profitability through continued focus on operational excellence and value chain optimization.

Industrial Automation

Formerly the Process Automation division, Industrial Automation builds on ABB's #1 position in control solutions for industry, and will drive digitalization across industry sectors through ABB's unique combination of domain expertise, and software and services.

By focusing on growing segments and bringing together maintenance, operation and control in industries as diverse as pharmaceuticals, mining, shipping and oil and gas, ABB will drive penetration of strongholds and create differentiation for customers.

Power Grids

Finally, the transformation of the Power Grids division continues within ABB, with the focus on high-growth segments and digitally enabled services and software. As part of the ongoing transformation, Power Grids will continue to de-risk the business model while tapping growth opportunities through strategic partnerships, such as those with leading EPC (engineering, procurement and construction) companies, Fluor and Aibel, announced last year. In addition, ABB will continue portfolio pruning, as with the sale of the high-voltage cables business to NKT Cables. As a consequence of the transformation, ABB is raising the operational EBITA margin target corridor for the Power Grids division from 8–12 percent to 10–14 percent effective 2018.

Quantum leap in digital

As the world leader in control systems for industry, ABB has more than 70,000 installed systems connecting over 70 million devices, making it a "hidden" digital champion. In addition, more than half of its sales come from software and digitally enabled devices.

In stage 3 of its Next Level strategy, ABB will use its profound knowledge of its customers' domains to plan, build and operate a unique digital offering to deliver true operational differentiation for customers. The newly launched "ABB Ability" offering combines ABB's portfolio of digital solutions and services across all customer segments to deliver unprecedented improvements in uptime, speed and yield. With this digital offering, ABB will cement its leading position in the fourth industrial revolution and support the competitiveness of ABB's four entrepreneurial divisions.

To drive its quantum leap in digital, ABB has entered a far-reaching strategic partnership with Microsoft, the world's largest software company, to develop next-generation digital solutions on an integrated cloud platform. Customers will benefit from the unique combination of ABB's deep domain knowledge and extensive portfolio of industrial solutions and Microsoft's Azure intelligent cloud as well as B2B engineering competence. Together, the partners will drive digital transformation in customer segments across ABB's businesses such as robotics, marine and e-mobility.

ABB's digital transformation will be led by its Chief Digital Officer, Guido Jouret, a pioneer in the Internet of Things, who joined the company on October 1, 2016, reporting to CEO Ulrich Spiesshofer (see page 27).

Accelerating momentum in operational excellence

ABB continues to build on its existing momentum and is further accelerating its operational excellence by raising the cost reduction target of its 1,000 day white-collar productivity program by 30 percent to $1.3 billion. This will be achieved as planned by the end 2017, with lower total restructuring and implementation costs. The 1,000-day working capital program, focused on improving inventory management and optimizing other net working capital measures, remains on course to free up approximately $2 billion by the end of 2017.

Strengthening the global ABB brand

To communicate its quantum leap forward in digital and to ensure it is perceived as a pioneering technology leader at the forefront of the digital revolution, ABB is transforming its global brand.

Over the next two years, all corporate brands will be brought under the single master ABB brand. This will make it easier for customers to understand what ABB does and to navigate its portfolio, and to increase customer loyalty and purchase probability as well as price premiums. In addition, one master brand allows ABB to better present its strategy to relevant stakeholders and emphasizes its customer-first, digital-first thinking.

The unified ABB brand will have a new visual identity that clearly communicates the company's digital capabilities as well as its direction and unique market position to customers, shareholders, employees and all other stakeholders. ABB's heritage as a pioneering technology leader and the three focus areas of its Next Level strategy are reflected in its new brand promise: "Let's write the future."

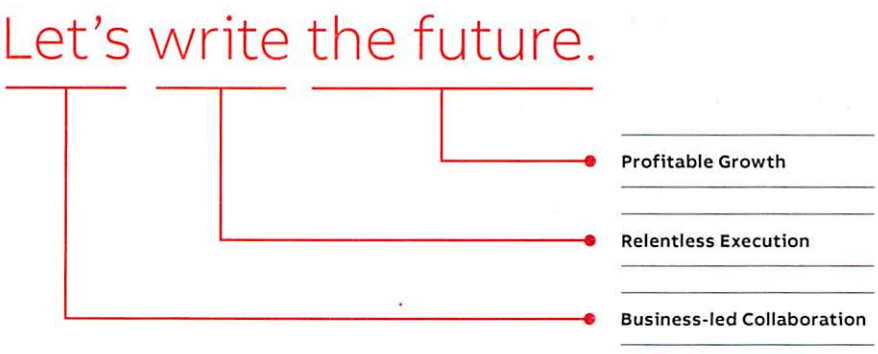


ABB Ability™
Creating Value through Digitalization

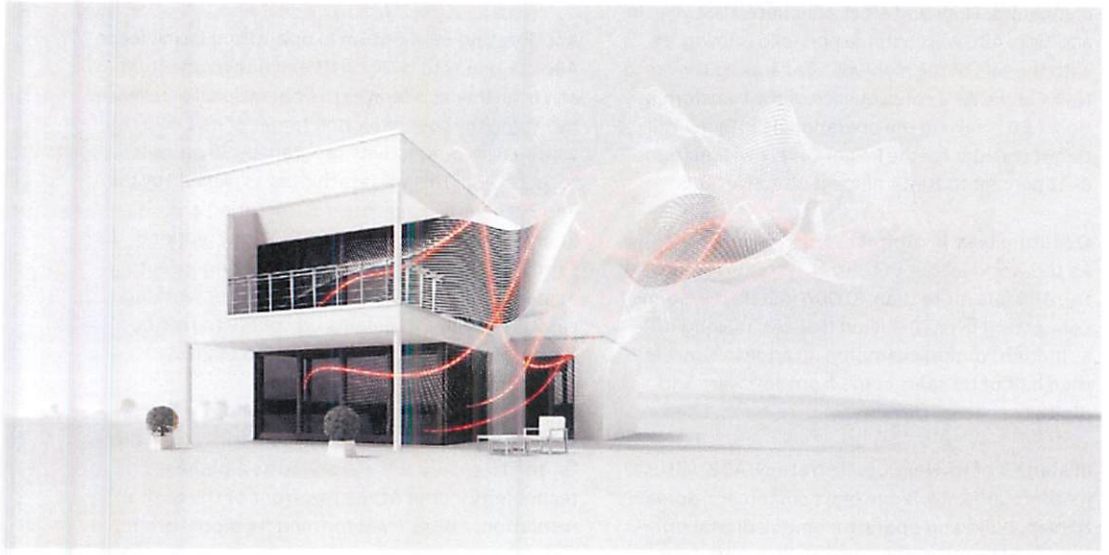


ABB Ability™ uses digitalization to close the loop between technology, services, and people, and thereby unlock value while building the framework for the future.

We've been writing this future with our clients for years, with an installed base of 70 million connected devices and 70,000 control systems. ABB Ability™ unifies our expertise and insights across multiple industry sectors and technology platforms.

The digitized application of that expertise differs with each project – we apply combinations of our technology, services, and the data know-how address our clients' unique mission-critical needs, and then innovate over time – but our value proposition is consistent: Let's write the future.

Enabling Transformative Change

Today's global economy demands that businesses find new, faster ways to deliver productivity within the constraints of resources and regulation, and ABB's digital solutions weave together the elements to deliver it: Robotics. Remote monitoring and management. Predictive maintenance. Collaborative operations. Next generation hardware. Cloud-based software. Here are two examples of how we've partnered with our clients to meet their needs, and then innovate solutions to deliver future opportunities.

NORSKE SHELL
GAS FIELD IN THE NORTH SEA

THE NEED FOR SPEED

ABB & Norske Shell

When Norske Shell's Ormen Lange gas field neared the start of operations in the summer of 2007, it was already the largest single development project in Norwegian industrial history. Production from its facilities in the North Sea could reach 70 million standard cubic meters per day, enough to supply up to 20 percent of the UK's demand for gas.

Getting the project running quickly and reliably was a textbook case in the benefits of speed. Every additional day of uptime could mean millions, literally, in gas pumped or revenues earned and costs saved.

So that's when Shell turned to ABB.

We were already its trusted partner, having worked with Aker Solutions, the engineering contractor for the facility, to supply automation, electrification, telecommunications and operator training systems.

The size and complexity of the system cannot be overstated: The distributed control system is an ABB 800xA with six operator workplaces and eight engineering stations, requiring 42 servers in six cabinets for the process automation and information management system. The 15,000 I/Os are mainly on HART and Profibus.

"Although Norske Shell was involved throughout the design phase, we did not feel we had sufficiently detailed expertise to optimize the system," says Arne Røsdal, Norske Shell's operations support supervisor of Ormen Lange.

Commissioning & Tuning

When Shell asked ABB to speed up commissioning of the control logic, as well as to increase the up-time and efficiency of the equipment, we assembled a team with specialized expertise in process and production optimization from a department within ABB called Integrated Operations.

A founding project insight was to develop the process control services simultaneously with commissioning the automation system. This would require close integration between Shell's and ABB's teams.

Digital solutions would make that collaboration possible.

ABB's services combined our deep industry sector expertise with tailor-made tools and applications to single out and identify a problem, adapt the software or control strategy, as well as pinpoint issues with the mechanical equipment or the operational procedures.

"The first objective was to get the plant and sub-systems up and running as quickly as possible. We started by tackling any obvious problems and then gradually moved on to loop tuning, control logic improvement and operational support," says Arne Røsdal.

Operational Excellence

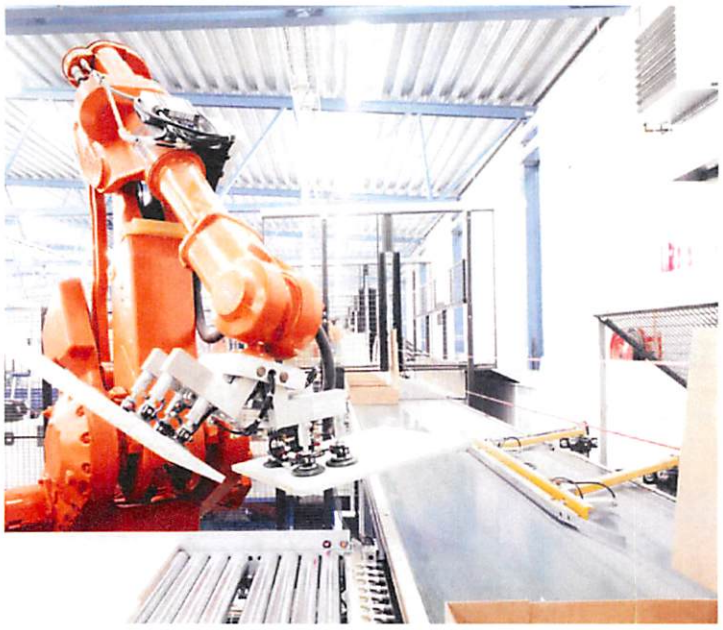
The speed of operational insights that ABB provided not only made it easier to identify problems earlier and solve them permanently during the startup phase, but also enabled ongoing performance improvements.

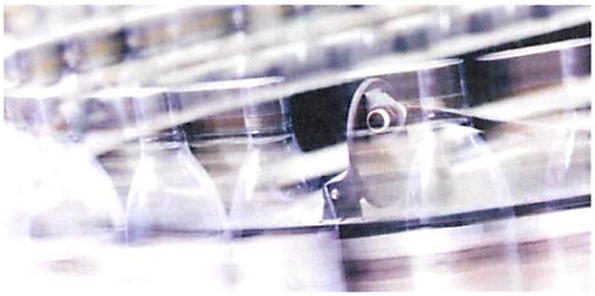
"For instance, condensate production has increased, which helps increase revenues. The ABB team has also helped reduce the amount of heat transfer medium in the cooling processes," says Røsdal.

Additionally, the ABB team has identified opportunities for energy savings of more than 3 MW. Significant energy savings have been achieved by optimizing control of the export compressor by reducing the cooler temperature.

Improved plant up-time, less wear of equipment, increased condensate production and reduced energy use all mean maximized profit with safe and robust operation, while maintaining quality constraints and export requirements. The result has been increased up-time by four to five days per year.

Again, time means money.





PREVENTIVE MAINTENANCE ON ROBOTS

ABB & Pioneer Foods Group

Pioneer Foods Group is a leading South African food and beverage producer which exports its products all over the world. Its Shakaskraal bakery near Durban is its largest, and mainly serves a Portugal-sized province of KwaZulu-Natal.

Its cutting edge technology ensures the highest product quality, while also supporting sustainable operations. Reflective white roof sheets reduce the need for electrical lighting and internal cooling, while harvesting rain water for truck washing and irrigation. It relies on renewable resource-fired boilers and heat recovery on refrigeration equipment for the pre-heating of water.

Ultimately, its performance depends on the productivity of its workforce. So Pioneer Foods turned to ABB in 2016 to help ensure that its robots show up for work on time.

ABB supplied the company's first robots in 2008 to the Olifantsfontein bakery in South Africa, and more robots were ordered on a steady basis during the following years. With the latest four ABB robots being commissioned last year, there were 27 robots doing everything from pan handling, bread de-panning, lidding, de-lidding and lid storage.

This existing relationship served as the foundation for an expanded relationship with ABB.

"They make sure we stay informed on current technology, new updates and upgrades and help us with critical spare parts onsite. We have high expectations on ABB's service professionalism and ABB always delivers," says Ivan Padayachee, Engineering Manager at Pioneer Foods' Shakaskraal bakery.

PIONEER FOODS GROUP
SHAKASKRAAL BAKERY, SOUTH AFRICA

Condition Monitoring & Diagnostics

Keeping Pioneer Foods' robot systems running at optimal performance relies on ensuring faster reaction time, higher efficiency, and better and quicker service and support.

Doing so means utilizing the connectivity capability built into every ABB robot, which allows for linking them via wireless or hardwire and leveraging actionable data. We implemented our Condition Monitoring & Diagnostics digital solution, which not only closes the loop between robots and operators, but operates securely and 24/7.

"ABB works closely with the Shakaskraal team to make sure preventive maintenance is done on the right robots and at the right times," explained Padayachee.

The results can all be measured in time savings: More efficient service prep, faster incident notification and reaction, and an iterative improvement anticipating the most frequent failures.

This success is also a demonstration of the benefits of ABB's digital solutions.

Digital Solution Opportunities

Condition Monitoring & Diagnostics is one of five services that our Connected Services can tailor to meet a client's unique needs; the others are Backup Management, Remote Access, Fleet Assessment, and Asset Optimization.

We also enable this connectivity not only via our robots. Our smart sensor solution can connect any low-voltage motor with the cloud, gather and analyze multiple parameters and call for action whenever needed.

With integrating each service come further improvements in facility productivity, delivering fewer incidents and reducing time, while increasing efficiency and extending equipment lifetime. The digitalization of vital processes also yields a learning relationship that makes system management more effective while informing it with new issues and opportunities that need to be addressed.

"Pioneer Foods believe in being proactive, not reactive," says Trevin Chetty, Service Engineer, ABB Robotics, South Africa.

So does ABB.

GUIDO JOURET

Unlocking value for industrial customers

Guido Jouret, ABB's Chief Digital Officer since October 2016, explains how ABB can help customers realize the efficiency and performance improvements that digitalization delivers today.

ABB is a leader in digital systems and software. What has been lacking is a common platform for its digital assets; traditionally, these have been locked up in its individual businesses rather than shared across the entire group. With "ABB Ability", we will bring together ABB's entire portfolio of digital solutions and services, making them accessible to all our businesses and customers.

ABB What does a Chief Digital Officer do?
GJ The CDO position is relatively new; not many companies have one. It was created to help enterprises digitalize their products and services. My role at ABB is to see how the latest technologies, such as sensors, data analytics and cloud-based services, can be applied to the entire ABB portfolio to unlock greater value for our customers, in terms of uptime, speed and yield.

ABB How is ABB positioned in digital?
GJ To create value for industrial customers, you need a large installed base. This is essential because it is not enough simply to attach a sensor to a machine or robot and transmit the data to the cloud – plenty of companies can do that. The value lies in what you do with the data – how you turn it into actionable information to help customers derive maximum value from digitalizing their assets. ABB is very well positioned because it has some of the largest installed bases in power grids, industrial robotics, and control systems for industry. This means we have the domain expertise – knowledge of our customers' industries – to understand how digital technologies can best be used.

ABB Tell us about "ABB Ability"
GJ With its installed base of more than 70 million connected devices and 70,000 control systems,

ABB How does ABB's partnership with Microsoft fit into "ABB Ability"?
GJ As part of ABB's quantum leap in digital, we formed a strategic partnership with Microsoft to develop next-generation digital solutions on an integrated cloud platform. Microsoft was the natural choice because of its unrivalled ecosystem of software developers. For ABB, this means we can build our applications on Microsoft's Azure platform, taking advantage of all of its capabilities, and add value with our domain-specific solutions. In effect, we are turning our decades of industrial expertise into software offerings that can be accessed through the world's largest and most advanced digital platform.

ABB How "digital" is the industry at the moment?
GJ The digital transformation of the industry is just beginning, in the grid, in factory automation and in building automation – all of the markets in which ABB is present. ABB is well positioned because we are very early in that transformation journey, we are respected by our customers, we have world-class products and, in the future, we will have a world-class digital environment.

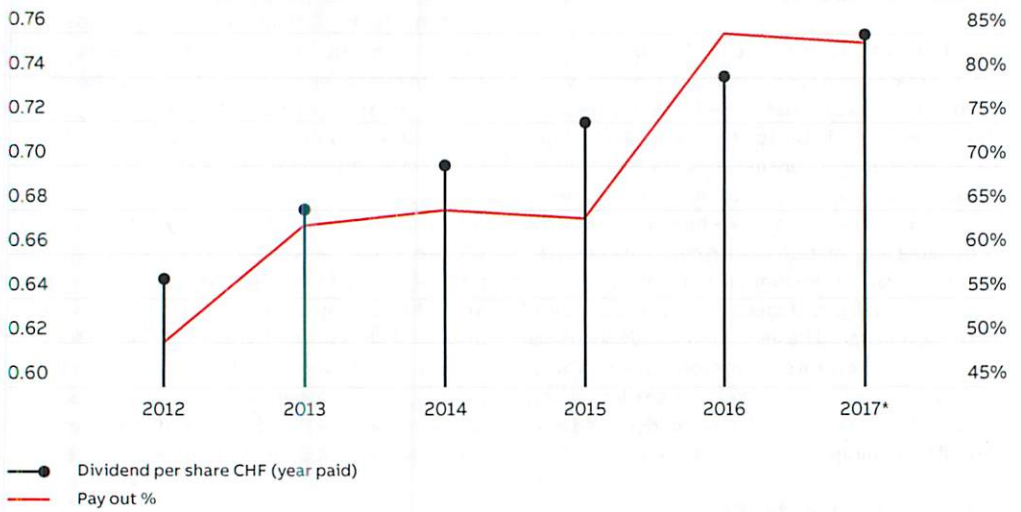
Shareholder Return and Capital Allocation

ABB's capital allocation priorities remain unchanged: 1) funding organic growth, R&D and capital expenditures at attractive cash returns; 2) paying a steadily rising, sustainable dividend; 3) investing in value-creating acquisitions; and 4) returning additional cash to shareholders.

ABB's strong cash generation continued in 2016. Free cash flow grew 2 percent compared to the previous year and the return on invested capital increased further to around 14 percent. The strong cash generation allows for significant deployment of capital. From 2014 to 2016, ABB has returned around $8.7 bn to shareholders in the form of dividends and share buy backs. Capital allocation including acquisitions as well as investments for organic growth through capital expenditures, Research & Development as well as sales expense totaled around 27 bn from 2014 to 2016.

ABB announced in October 2016 its plans for a new share buyback program of up to $3 bn from 2017 through 2019. This reflects the company's confidence and the continued strength of ABB's cash generation and financial position. On September 30, 2016, ABB announced the completion of its recent share buyback program in which it returned $3.5bn to its shareholders. Active portfolio management remains a key aspect of ABB's operating pattern as demonstrated in the recent portfolio pruning and bolt on acquisitions as well as the announced cable business divestiture and business model changes in Power Grids.

Cash Return to Shareholder 1



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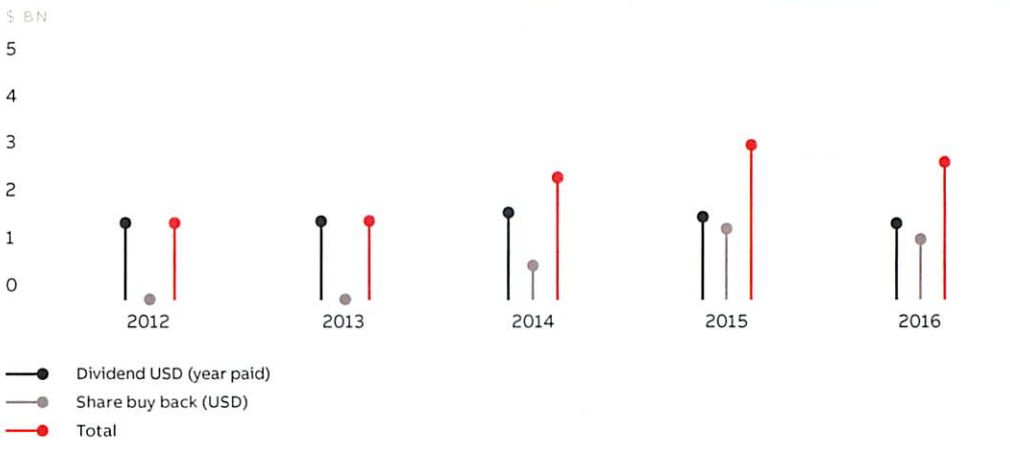
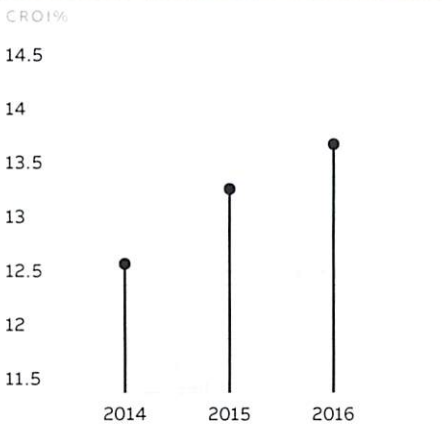
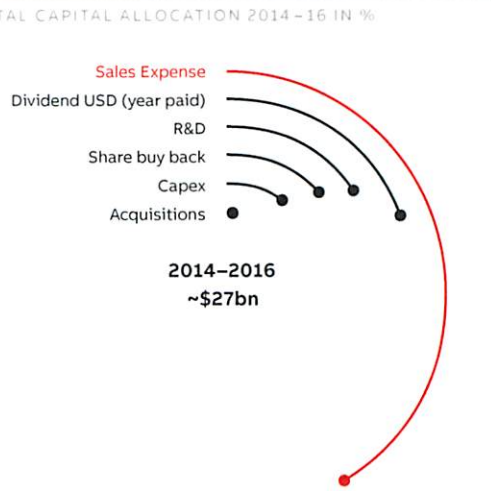
Cash Return to Shareholder 2



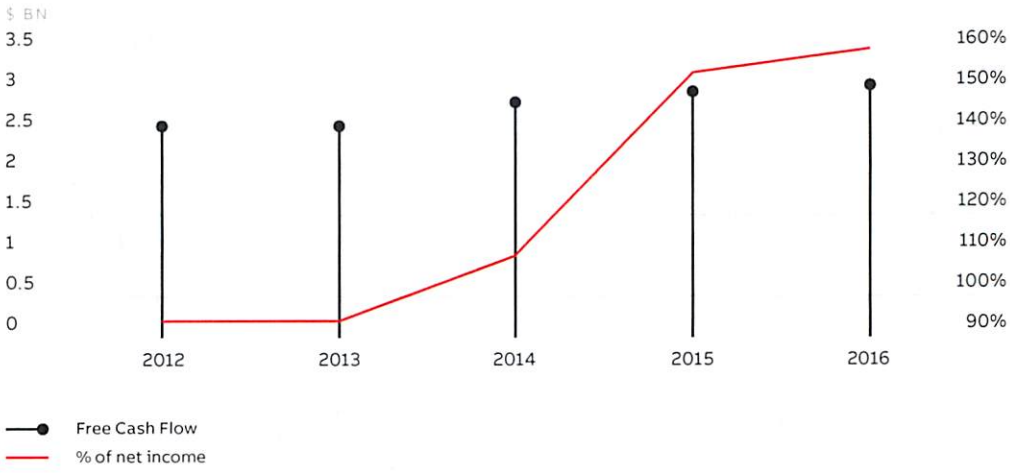
Cash Return on Invested Capital



Capital Allocation



Free Cash Flow



Living our values to deliver on our Next Level strategy

At ABB, how we execute our Next Level strategy is just as important as delivering on our targets. To drive sustainable value creation for all our stakeholders, we have five value pairs, which all of our employees are expected to live every day.

Values drive our behavior
In today's competitive and fast-changing world, the command and control structures of the past are no longer effective. Instead, our behavior, working relationships and the way we do business must be based on values that leave no room for compromise when it comes to safety and integrity, and that encourage a passion for customer focus and quality, while driving high performance, accountability and collaboration.

Five value pairs

1. Safety and integrity
ABB strives every day to live these core values. Though training, internal values campaigns, and continuously communicating the need to uphold high standards of safety and integrity, we seek to instill a culture in which employees practice safe and ethical behavior in all aspects of their lives. Through our "Don't look the other way!" approach, we encourage everyone to draw attention to behavior and actions that might compromise others' health and wellbeing, or jeopardize their careers or the reputation of the company.

2. Customer focus and quality
To prosper as a company, the customer has to be at the center of all our activities, and we need to deliver the highest quality in everything we do. Knowing our customers better, being perceived as having a clear focus on them, and providing high-quality offerings and services is what make us the partner of choice in highly competitive markets.

3. Innovation and speed
Innovation is not only the job of R&D, it is at the core of our value proposition and is therefore everyone's job at ABB. Digitalization is opening a world of new possibilities and transforming industry at the same time, and we need to drive that transformation, otherwise we will be left trying to catch up. In today's fast-paced world, speed is essential – we must be fast without being hasty in order to master new technologies and stay ahead of the competition.

4. Ownership and performance
Strengthening lines of responsibility and accountability across our organization is a key part of our Next Level strategy. Focused, well-articulated responsibilities for our businesses, country organizations and functions are paramount to drive performance to the next level. Our new organization reflects these principles and is built around them. Institutional and individual performance are key to continue to succeed in a demanding world. Performance is what is expected from all of us every day – not only continuing what we are doing, but also taking a step forward.

5. Collaboration and trust
With our Next Level strategy, we have defined actions to unlock further value for our stakeholders. But knowing what we have to do is not enough, we need to drive a culture of collaboration at all levels across the company and build trust. In stage 3 of our Next Level strategy, our four market-leading divisions are empowered as entrepreneurial units to drive sustainable value creation, supported by our regions and the group's digital offering and leading G&A cost level. Successful collaboration builds trust, which in turn strengthens collaboration, enabling us to write the future with all of our stakeholders.

CEO ULRICH SPIESSHOFER

At ABB, we seek to instill a culture in which everyone practices safe and ethical behavior in all aspects of their lives.

Executive Committee
Together, we drive progress

SAMI ATIYA
ROBOTICS AND MOTION DIVISION

DIANE DE SAINT VICTOR
GENERAL COUNSEL

GREG SCHEU
AMERICAS REGION

FRANK DUGGAN
ASIA, MIDDLE EAST AND AFRICA (AMEA) REGION

PETER TERWIESCH
INDUSTRIAL AUTOMATION DIVISION

JEAN-CHRISTOPHE DESLARZES
CHIEF HUMAN RESOURCES OFFICER

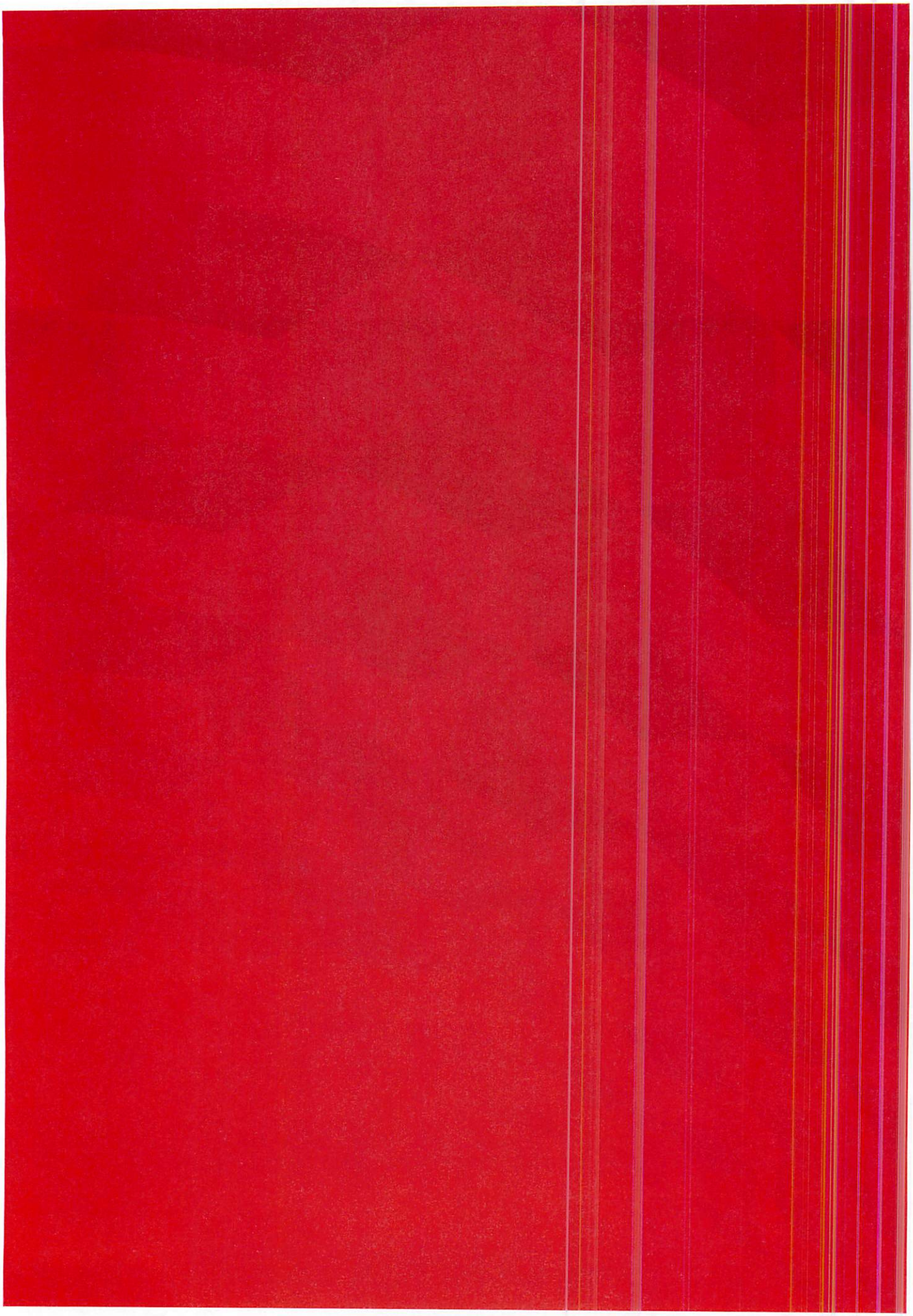
ULRICH SPIESSHOFER
CHIEF
EXECUTIVE
OFFICER

CLAUDIO FACCHIN
POWER GRIDS
DIVISION

TARAK MEHTA
ELECTRIFICATION
PRODUCTS
DIVISION

ERIC ELZVIK
CHIEF
FINANCIAL
OFFICER

BERNHARD JUCKER
EUROPE
REGION



02
Corporate governance report


Si2
SOLVAY
OMEGA
Schindler
ABB

TAMARA, DESIGN & ENGINEERING, TURGI, SWITZERLAND

I was part of one of the most exciting projects ever – Solar Impulse.

Chairman's letter

Dear shareholder,

On behalf of the Board of Directors, I am pleased to present ABB's corporate governance report. In 2016, we strengthened the Board with four new members, worked closely with the CEO and Executive Committee on Stage 3 of ABB's Next Level strategy, and took a close and critical look at ABB's portfolio to ensure it is optimized to create sustainable value.

2016 was a special year for ABB. The company celebrated 125 years of serving the world with pioneering technology from Switzerland, a heritage we are all tremendously proud of. It brings home the weight of responsibility on the Board and the management to continue steering ABB successfully now and for future generations.

Mandate

In common with other publicly listed companies in Switzerland, the ABB Board of Directors is responsible for reviewing and approving the company strategy. The Board is also responsible for ensuring that ABB has the best leadership team in place to execute the strategy, optimize performance and maintain our high ethical standards.

Two factors are key to the Board's ability to perform these duties successfully. First, it is crucial that, collectively, the directors have a diverse and deep range of complementary skills and experience that match the needs of ABB's strategy. In today's rapidly changing world, where technology is advancing at an even faster pace, this is more important than ever. Second, it is essential to ensure that the directors develop an excellent understanding of ABB's operations and markets, so that they are fully equipped to take informed decisions about the company's future.

In 2016, we strengthened the board with four new members. Robyn Denholm and David Meline bring expertise in digitalization and software, as well as extensive leadership experience in financial roles at large and successful companies. And Frederico Fleury Curado and Satish Pai have experience leading flagship companies in important emerging markets, bringing vast and valuable knowledge in research and development, technology and manufacturing to ABB. Unfortunately, Robyn will not be standing for re-election, as she has taken on a new executive role.

Our new directors undertook an intensive "onboarding" program in 2016, during which they had the opportunity to see ABB operations in different parts of the world, and to meet with members of the EC and other senior managers.

With our new members, all of whom were elected with overwhelming support at the annual general meeting, the ABB Board is more diverse than ever. It comprises directors of ten nationalities from a wide variety of industries. Furthermore, almost two-thirds of the directors have joined the Board within the past three years, ensuring a balance between new members who bring fresh perspectives and longer-serving ones whose experience ensures continuity and stability.

Priorities in 2016

Part of the Board's strategic oversight responsibility is active portfolio management to ensure that ABB focuses on the right markets and that its core businesses are properly positioned in its target markets. In 2016, an important focus of our work was the Power Grids division, which we put through a comprehensive strategic portfolio review to determine the maximum value creation potential for ABB shareholders.

The review included an internal analysis as well as independent assessments performed by external advisors and experts. Every aspect of the division's portfolio was closely examined, including its market attractiveness today and in the future, the offering as well as the business models of its various units and the best ownership structure to fulfil its potential.

Following a careful assessment of all the options together with the EC, the Board concluded that shareholders' best interests were served by the continued transformation of Power Grids under ABB's ownership. The unanimous decision was announced in October 2016.

Alongside the strategic portfolio review of Power Grids, the Board in 2016 evaluated the company's strategic direction and approved changes to further enhance sustainable value creation. Further, the Board conducted regular financial and business reviews, set Group performance targets and the personal objectives of the CEO, and reviewed capital allocation including investments and transactions, as well as the approval and progress of

major projects. The Board also approved the annual report and the general meeting agenda.

The Board held 5 private meetings, meetings without ABB executives and experts, during which we conducted a Board self-evaluation, a performance assessment of senior management and a review of succession planning.

Chairman's role
As an independent, non-executive chairman, my role is to provide direction to the Board and ensure that we have an efficient, collaborative relationship with the CEO and the members of the EC, who have full and undiluted responsibility for the execution of the strategy and the operational management of the company.

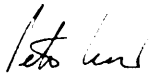
As chairman, I see my role as ensuring that our committees work effectively, providing expert advice and guidance for important decisions and leading by example.

I have a strong and open relationship with the CEO, characterized by mutual respect, and I seek to provide support and offer a different perspective as a sounding board and a source of advice.

Dialogue with shareholders
Ultimately, my priority as chairman is you, the shareholders of our company. It is your interests that the Board represents and it is imperative that we have a collaborative and open dialogue. I was honored by the warmth with which I was received at the AGM in 2016, and at the level of support for our Board members.

It is a privilege to serve your interests in such a great company as ABB and to represent so many shareholders who obviously care deeply about its long-term success.

Sincerely yours,



Peter R. Voser
Chairman of the Board

March 10, 2017

Summary of corporate governance approach

General Meeting of Shareholders

Board of Directors

External Auditor

Executive Committee

Corporate Governance – General principles

ABB is committed to the highest international standards of corporate governance and this is reinforced in its structure, processes and rules as outlined in this corporate governance report. In line with this, ABB complies with the general principles as set forth in the Swiss Code of Best Practice for Corporate Governance, as well as those of the capital markets where its shares are listed and traded. In addition to the provisions of the Swiss Code of Obligations, ABB's key principles and rules on corporate governance are laid down in ABB's Articles of Incorporation, the ABB Ltd Board Regulations & Corporate Governance Guidelines (which includes the regulations of ABB's Board committees and the ABB Ltd Related Party Transaction Policy), and the ABB Code of Conduct and the Addendum to the ABB Code of Conduct for Members of the Board of Directors and the Executive Committee (EC). It is the duty of ABB's Board of Directors (the Board) to review and amend or propose amendments to those documents from time to time to reflect the most recent developments and practices, as well as to ensure compliance with applicable laws and regulations.

Compensation Governance and Board and EC compensation

Information about ABB's Compensation Governance as well as Board and EC compensation and shareholdings can be found in the Compensation report contained in this Annual Report.

Board of Directors

Board and Board Committees (2016–2017 Board Term)

Board of Directors			
Chairman: Peter R. Voser Vice Chairman: Jacob Wallenberg	Matti Alahuhta David Constable Frederico Fleury Curado	Robyn Denholm Louis R. Hughes David Meline	Satish Pai Michel de Rosen Ying Yeh

Finance, Audit and Compliance Committee	Governance and Nomination Committee	Compensation Committee
Louis R. Hughes (chairman) Robyn Denholm David Meline Satish Pai	Peter R. Voser (chairman) Matti Alahuhta Jacob Wallenberg	Michel de Rosen (chairman) David Constable Frederico Fleury Curado Ying Yeh

Board governance

The Board
The Board defines the ultimate direction of the business of ABB and issues the necessary instructions. It determines the organization of the ABB Group and appoints, removes and supervises the persons entrusted with the executive management and representation of ABB. The internal organizational structure and the definition of the areas of responsibility of the Board, as well as the information and control instruments vis-à-vis the Executive Committee, are set forth in the ABB Ltd Board Regulations & Corporate Governance Guidelines.

The Board takes decisions as a whole, supported by its three committees: the Finance, Audit and Compliance Committee (FACC), the Governance and Nomination Committee (GNC), and the Compensation Committee (CC). These committees assist the Board in its tasks and report regularly to the Board. The members of the Board committees either are required to be independent or are elected directly by the shareholders. The Board and its committees meet regularly throughout the year. Any Board Member may request a Board or committee meeting and the inclusion of an agenda item. Before meetings, Board Members receive materials to help them prepare for the discussions and decision making.

The directors and officers of a Swiss corporation are bound, as specified in the Swiss Code of Obligations, to perform their duties with all due care, to safeguard the interests of the corporation in good faith and to extend equal treatment to shareholders in like circumstances.

The Swiss Code of Obligations does not specify what standard of due care is required of the directors of a corporate board. However, it is generally held by Swiss legal scholars and jurisprudence that the directors must have the requisite capability and skill to fulfill their function, and must devote the necessary time to the discharge of their duties. Moreover, the directors must exercise all due care that a prudent and diligent director would have taken in like circumstances. Finally, the directors are required to take actions in the best interests of the corporation and may not take any actions that may be harmful to the corporation.

Chairman of the Board
The Chairman is elected by the shareholders to represent their interests in creating sustainable value through effective governance. In addition, the Chairman (1) takes provisional decisions on behalf of the Board on urgent matters where a regular Board decision cannot be obtained (2) calls for Board meetings and sets the related agendas, (3) interacts with the CEO and other EC members on a more frequent basis outside of Board meetings and (4) represents the Board internally and in the public sphere.

Vice-Chairman of the Board
The Vice-Chairman is elected by the Board and handles the responsibilities of the Chairman to the extent the Chairman is unable to do so or would have a conflict of interest in doing so. He also acts as counselor/advisor to the Chairman on any matters that are Company or Board relevant and as appropriate or as the Chairman may require and with a particular focus on strategic aspects related to the Company and its business in general. In addition, the Vice-Chairman takes such other actions as may be decided by the Board or requested by the Chairman.

Finance, Audit and Compliance Committee
The FACC is responsible for overseeing (1) the integrity of ABB's financial statements, (2) ABB's compliance with legal, tax and regulatory requirements, (3) the independent auditors' qualifications and independence, (4) the performance of ABB's internal audit function and external auditors, and (5) ABB's capital structure, funding requirements and financial risk and policies.

The FACC must comprise three or more independent directors who have a thorough understanding of finance and accounting. The Chairman of the Board and, upon invitation by the committee's chairman, the CEO or other members of the Executive Committee may participate in the committee meetings, provided that any potential conflict of interest is avoided and confidentiality of the discussions is maintained. In addition, the Chief Integrity Officer, the Head of Internal Audit and the external auditors participate in the meetings as appropriate. As required by the U.S. Securities and Exchange Commission (SEC) at least one member of the FACC has to be an audit committee financial expert. The Board has determined that each member of the FACC is an audit committee financial expert.

Governance and Nomination Committee
The GNC is responsible for (1) overseeing corporate governance practices within ABB, (2) nominating candidates for the Board, the role of CEO and other positions on the Executive Committee, and (3) succession planning and employment matters relating to the Board and the Executive Committee. The GNC is also responsible for maintaining an orientation program for new Board members and an ongoing education program for existing Board members.

The GNC must comprise three or more independent directors. The Chairman of the Board (unless he is already a member) and, upon invitation by the committee's chairman, the CEO or other members

Members of the Board (2016-2017 Board Term)

Name	Nationality	Year of Birth	First election at AGM	End of current term	Non-Executive	Independent
Peter R. Voser	CH	1958	2015	2017	Yes	Yes
Jacob Wallenberg	SE	1956	1999	2017	Yes	Yes
Matti Alahuhta	FI	1952	2014	2017	Yes	Yes
David Constable	CA	1961	2015	2017	Yes	Yes
Frederico Fleury Curado	BR	1961	2016	2017	Yes	Yes
Robyn Denholm	US/AU	1963	2016	2017	Yes	Yes
Louis R. Hughes	US	1949	2003	2017	Yes	Yes
David Meline	CH/US	1957	2016	2017	Yes	Yes
Satish Pai	IN	1961	2016	2017	Yes	Yes
Michel de Rosen	FR	1951	2002	2017	Yes	Yes
Ying Yeh	CN	1948	2011	2017	Yes	Yes

of the Executive Committee may participate in the committee meetings, provided that any potential conflict of interest is avoided and confidentiality of the discussions is maintained.

Compensation Committee

The CC is responsible for compensation matters relating to the Board and the Executive Committee.

The CC must comprise three or more directors who are elected by the shareholders. The Chairman of the Board and, upon invitation by the committee's chairman, the CEO or other members of the Executive Committee may participate in the committee meetings, provided that any potential conflict of interest is avoided and confidentiality of the discussions is maintained.

Board Membership

Board Composition

In proposing individuals to be elected to the Board, the Board seeks to align the composition and skills of the Board with the company's strategic needs, business portfolio, geographic reach and culture. The Board must be diverse in all aspects including gender, nationalities, geographic/regional experience and business experience. In addition, the average tenure of the members of the Board should be well balanced. The Board also considers the number of other mandates of each Board member to ensure that he/she will have sufficient time to dedicate to his/her role as an ABB board member.

Elections and Term of Office

The members of the Board of Directors and the Chairman of the Board as well as the members of the Compensation Committee are elected by shareholders at the General Meeting of Shareholders for a term of office extending until completion of the next Ordinary General Meeting of Shareholders. Members whose terms of office have expired shall be immediately eligible for re-election. Our Articles of Incorporation do not provide for the retirement of directors based on their age. However, an age limit for members of the Board is set forth in the ABB Ltd Board Regulations & Corporate Governance Guidelines (although waivers are possible and subject to Board discretion). If the office of the Chairman of the Board of Directors or any position on the Compensation Committee becomes vacant during a Board term, the Board of Directors may appoint (shall appoint in the case of the Chairman of the Board) another individual from among its members to that position for the remainder of that term. The Board of Directors shall consist of no less than 7 and no more than 13 members.

Members of the Board (2016-2017 Board Term)

Peter R. Voser has been a member and chairman of ABB's Board of Directors since April 2015. He is a member of the boards of directors of Roche Holdings Ltd (Switzerland), IBM Corporation (U.S.) and Temasek Holdings (Private) Limited (Singapore). He is also the chairman of the board of Catalyst (U.S.), a non-profit organization. He was the chief executive officer of Royal Dutch Shell plc (The Netherlands) from 2009 until 2013. Mr. Voser was born in 1958 and is a Swiss citizen.

Jacob Wallenberg has been a member of ABB's Board of Directors since June 1999 and Vice-Chairman since April 2015. He is the chairman of the board of Investor AB (Sweden). He is vice chairman of the boards of Telefonaktiebolaget LM Ericsson AB, SAS AB, FAM AB and Patricia Industries AB (all Sweden). He is also a member of the boards of directors of the Knut and Alice Wallenberg Foundation and the Stockholm School of Economics (both Sweden) and vice-chairman of the Swedish-American Chamber of Commerce (U.S.). Mr. Wallenberg was born in 1956 and is a Swedish citizen.

Matti Alahuhta has been a member of ABB's Board of Directors since April 2014. He is the chairman of the boards of Outotec Corporation and of DevCo Partners Oy (both Finland). He is also a member of the boards of directors of KONE Corporation (Finland) and Volvo AB (Sweden). He was president and CEO of KONE Corporation from 2006 until March 2014 and in addition he served as its president in 2005. He joined KONE Corporation after 26 years with Nokia Corporation (Finland). Mr. Alahuhta was born in 1952 and is a Finnish citizen.

David Constable has been a member of ABB's Board of Directors since April 2015. He was the chief executive officer of Sasol Limited (South Africa) from 2011 until June 2016 and in addition he was the president from 2014 until June 2016. He joined Sasol after more than 29 years with Fluor Corporation (U.S.). He is a member of the boards of directors of Rio Tinto plc (U.K.), Rio Tinto Limited (Australia) and Anadarko Petroleum Corporation (U.S.). Mr. Constable was born in 1961 and is a Canadian citizen.

Frederico Fleury Curado has been a member of ABB's Board of Directors since April 2016. He is a member of the boards of directors of Iochpe-Maxion S.A. (Brazil) and Transocean Ltd. (Switzerland). He was the CEO of Embraer S.A. (Brazil) from 2007 until June 2016. Mr. Curado was born in 1961 and is a Brazilian citizen.

Robyn Denholm has been a member of ABB's Board of Directors since April 2016. As of January 2017, she is the chief operations officer of Telstra Corporation Limited (Australia). Previously, she was the chief financial officer of Juniper Networks (U.S.) from 2007 to March 2016 and in addition she was the chief operating officer from 2013 to March 2016. She is a member of the board of directors of Tesla, Inc. (U.S.). Ms. Denholm was born in 1963 and is a U.S. and Australian citizen.

Louis R. Hughes has been a member of ABB's Board of Directors since May 2003. He is the chairman of the board of InZero Systems (formerly GBS Laboratories LLC) (U.S.). He is also a member of the supervisory board of Akzo Nobel N.V. (The Netherlands) and a member of the board of directors of Nokia Corporation (Finland). Mr. Hughes was born in 1949 and is a U.S. citizen.

David Meline has been a member of ABB's Board of Directors since April 2016. He is the chief financial officer of Amgen Inc. (U.S.). He was the chief financial officer of 3M Company (U.S.) from 2008 to 2014. Prior to joining 3M, Mr. Meline worked for more than 20 years for General Motors Company (U.S.). Mr. Meline was born in 1957 and is a Swiss and U.S. citizen.

Satish Pai has been a member of ABB's Board of Directors since April 2016. He is the managing director and member of the board of directors of Hindalco Industries Ltd. (India). He joined Hindalco in 2013 after 28 years with Schlumberger Limited (U.S.). Mr. Pai was born in 1961 and is an Indian citizen.

Michel de Rosen has been a member of ABB's Board of Directors since March 2002. He is the chairman of the board of Eutelsat Communications (France) and until March 2016 was also the chief executive officer. He is a member of the boards of directors of Pharnext SAS and Faurecia SARL (both France). Mr. de Rosen was born in 1951 and is a French citizen.

Ying Yeh has been a member of ABB's Board of Directors since April 2011. She is a member of the board of directors of Samsonite International S.A. (Luxembourg). Ms. Yeh was born in 1948 and is a Chinese citizen.

As of December 31, 2016, all Board members were non-executive and independent directors and none of ABB's Board members held any official functions or political posts. Further information on ABB's Board members can be found by clicking on the ABB Board of Directors CV link which can be found at www.abb.com/about/corporate-governance

Board Meetings

The Board meets as frequently as needed but at least four times per annual Board term. The Board has meetings with Executive Committee members as well as private meetings without them. Board meetings are convened by the chairman or upon request by a director or the CEO. Documentation covering the various items of the agenda for each Board meeting is sent out in advance to each Board member in order to allow each member time to study the covered matters prior to the meetings. Further, Board members are entitled to information concerning ABB's business and affairs. Decisions made at the Board meetings are recorded in written minutes of the meetings.

	2016									
	Pre Annual General Meeting 2016					Post Annual General Meeting 2016				
	Board					Board				
Meetings and attendance	Mtg.	Conf. Call	FACC	GNC	CC	Mtg.	Conf. Call	FACC	GNC	CC
Average duration (hours)	7.5	1.0	3.7	1.5	1.5	8.0	1.0	3.5	1.0	1.5
Number of meetings	2	1	3	4	3	5	1	6	3	3
Meetings attended:										
Peter R. Voser	2	1	—	4	—	5	1	—	3	—
Jacob Wallenberg	2	1	—	4	—	5	1	—	3	—
Roger Agnelli[1]	1	1	2	—	—	—	—	—	—	—
Matti Alahuhta	2	1	3	4	—	5	1	—	3	—
David Constable	2	1	—	—	3	5	1	—	—	3
Frederico Fleury Curado[2]	—	—	—	—	—	5	1	—	—	3
Robyn Denholm[2]	—	—	—	—	—	5	1	6	—	—
Louis R. Hughes	2	1	3	—	—	5	1	6	—	—
David Meline[2]	—	—	—	—	—	5	1	6	—	—
Satish Pai[2]	—	—	—	—	—	5	1	6	—	—
Michel de Rosen	2	1	—	—	3	5	1	—	—	3
Ying Yeh[3]	2	1	1	—	3	5	1	—	—	3

1) Roger Agnelli died in a tragic accident in May 2016.
2) Frederico Fleury Curado, Robyn Denholm, David Meline and Satish Pai were first elected to the Board at the April 28 AGM.
3) Ying Yeh substituted for Roger Agnelli at the last FACC meeting held before the AGM.

Meetings and attendance

The table above shows the number of meetings held during 2016 by the Board and its committees, their average duration, as well as the attendance of the individual Board members. The Board meetings shown include a strategic retreat attended by the members of the Board and the EC.

Mandates of Board members outside the ABB Group

No member of the Board may hold more than ten additional mandates of which no more than four may be in listed companies. Certain types of mandates, such as those in our subsidiaries, those in the same group of companies and those in non-profit and charitable institutions, are not subject to those limits. Additional details can be found in Article 38 of ABB's Articles of Incorporation.

Business Relationships between ABB and its Board members

This section describes important business relationships between ABB and its Board members, or companies and organizations represented by them. This determination has been made based on ABB Ltd's Related Party Transaction Policy. This policy is contained in the ABB Ltd Board Regulations & Corporate Governance Guidelines.

Sasol Ltd (Sasol) is an important customer of ABB. ABB supplies Sasol primarily with modular systems through its Electrification Products division. David Constable was president and chief executive officer of Sasol and a member of its board of directors through June 2016.

IBM Corporation (IBM) is an important supplier to ABB. IBM supplies ABB primarily with IT-related hardware, software and services. Peter Voser is a director of IBM.

ABB has an unsecured syndicated $2-billion revolving credit facility. As of December 31, 2016, SEB Skandinaviska Enskilda Banken AB (publ) (SEB) had committed to approximately $74 million out of the $2-billion total. In addition, ABB has regular banking business with SEB. Jacob Wallenberg was the vice chairman of SEB until March 2014.

After reviewing the level of ABB's business with Sasol and the level of purchases from IBM, and after reviewing the banking commitments of SEB, the Board has determined that ABB's business relationships with those companies are not unusual in their nature or conditions and do not constitute material business relationships. As a result, the Board concluded that all members of the Board are considered to be independent directors. This determination was made in accordance with ABB Ltd's Related Party Transaction Policy which was prepared based on the Swiss Code of Best Practice for Corporate Governance and the independence criteria set forth in the corporate governance rules of the New York Stock Exchange.

Executive Committee

Composition of the Executive Committee

Ulrich Spiesshofer
Chief Executive Officer

CORPORATE OFFICERS	DIVISION PRESIDENTS	REGION PRESIDENTS
Eric Elzvik Chief Financial Officer	**Tarak Mehta** Electrification Products	**Bernhard Jucker** Europe
Jean-Christophe Deslarzes Chief Human Resources Officer	**Sami Atiya** Robotics and Motion	**Frank Duggan** Asia, Middle East & Africa
Diane de Saint Victor General Counsel	**Peter Terwiesch** Industrial Automation	**Greg Scheu** Americas
	Claudio Facchin Power Grids	

Executive Committee Responsibilities and organization

The Board has delegated the executive management of ABB to the CEO. The CEO and under his direction the other members of the Executive Committee are responsible for ABB's overall business and affairs and day-to-day management. The CEO reports to the Board regularly, and whenever extraordinary circumstances so require, on the course of ABB's business and financial performance and on all organizational and personnel matters, transactions and other issues relevant to the Group. Each member of the Executive Committee is appointed and discharged by the Board.

Members of the Executive Committee (at December 31, 2016)

Ulrich Spiesshofer was appointed Chief Executive Officer in September 2013 and has been a member of the Executive Committee since 2005. From January 2010 to September 2013, Mr. Spiesshofer was the Executive Committee member responsible for the Discrete Automation and Motion division. He joined ABB in November 2005, as the Executive Committee member responsible for Corporate Development. From 2002 until he joined ABB, he was senior partner and global head of operations practice at Roland Berger AG (Switzerland). From 1991 to 2002, he held various management positions with A.T. Kearney Ltd. and its affiliates. Mr. Spiesshofer was born in 1964 and is a Swiss and German citizen.

Eric Elzvik was appointed Chief Financial Officer and member of the Executive Committee in February 2013. From 2010 to 2013, Mr. Elzvik was the Chief Financial Officer of ABB's Discrete Automation and Motion division. He joined ABB in 1984 and has held a variety of other leadership roles in Sweden, Singapore and Switzerland, including head of Corporate Development, and head of Mergers & Acquisitions and New Ventures. Mr. Elzvik was born in 1960 and is a Swiss and Swedish citizen.

Jean-Christophe Deslarzes was appointed Chief Human Resources Officer and member of the Executive Committee in November 2013. In April 2015, he was elected to the board of directors of the Adecco Group (Switzerland). From 2010 through 2013, he was the Chief Human Resources and Organization Officer of the Carrefour Group (France). From 2008 to 2010 he was President and CEO of the Downstream Aluminum Businesses of Rio Tinto (Canada). He was Senior Vice President Human Resources of Alcan Inc. (Canada) from 2006 to 2008 and in addition he co-led the integration of Rio Tinto and Alcan from 2007 to 2008. From 1994 to 2006, he held various human resources and management

roles with Alcan Inc. Mr. Deslarzes was born in 1963 and is a Swiss citizen.

Diane de Saint Victor was appointed General Counsel, Company Secretary and member of the Executive Committee in January 2007. In March 2013, she was appointed as a non-executive director of Barclays plc and Barclays Bank plc (both U.K.). From 2004 to 2006, she was general counsel of the Airbus Group (France/Germany). From 2003 to 2004, she was general counsel of SCA Hygiene Products (Germany). From 1993 to 2003, she held various legal positions with Honeywell International (France/Belgium). From 1988 to 1993, she held various legal positions with General Electric (U.S.). Ms. de Saint Victor was born in 1955 and is a French citizen.

Tarak Mehta was appointed President of the Electrification Products division effective January 2016 and has been a member of the Executive Committee since October 2010. From October 2010 through December 2015, he was President of the Low Voltage Products division. From 2007 to 2010, he was head of ABB's transformers business. Between 1998 and 2006, he held several management positions with ABB. Mr. Mehta was born in 1966 and is a U.S. citizen.

Sami Atiya was appointed President of the Robotics and Motion Division effective January 2017 and has been a member of the Executive Committee since June 2016. From June to December 2016 he was President of the Discrete Automation and Motion division. Prior to joining ABB, Mr. Atiya held senior roles at Siemens in Germany from 1997 to 2015, including CEO of the Mobility and Logistics division in the Infrastructure and Cities Sector from 2011. Mr. Atiya was born in 1964 and is a German citizen.

Peter Terwiesch was appointed President of the Industrial Automation division effective January 2017 and has been a member of the Executive Committee since January 2015. He is a member of the board of directors of Metall Zug AG (Switzerland). He was the President of the Process Automation division from 2015 to 2016. From 2011 to 2014, he was the head of ABB's Central Europe region. He was ABB's Chief Technology Officer from 2005 to 2011. From 1994 to 2005, he held several positions with ABB. Mr. Terwiesch was born in 1966 and is a Swiss and German citizen.

Claudio Facchin was appointed President of the Power Grids division effective January 2016 and has been a member of the Executive Committee since December 2013. From December 2013 through December 2015, he was President of the Power Systems division. From 2010 to 2013, Mr. Facchin was head of ABB's North Asia region. From 2004 to 2009, Mr. Facchin was the head of ABB's substations global business unit and from 1995 to 2004, he held various management roles with ABB. Mr. Facchin was born in 1965 and is an Italian citizen.

Bernhard Jucker was appointed President of the Europe region and Chairman of Divisional Transformation Team effective January 2016 and has been a member of the Executive Committee since January 2006. He is a member of the Board of directors of Rieter Holding Ltd. (Switzerland). From 2006 through 2015, he was President of the Power Products division. From 2003 to 2005, he was ABB's country manager for Germany. From 1980 to 2003, he held various positions in ABB. Mr. Jucker was born in 1954 and is a Swiss citizen.

Frank Duggan was appointed President of the Asia, Middle East and Africa region in January 2015 and has been a member of the Executive Committee since 2011. From 2011 to 2014, Mr. Duggan was the head of Global Markets. From 2008 to 2014, he was also ABB's region manager for India, Middle East and Africa. From 2008 to 2011, he was ABB's country manager for the United Arab Emirates. Between 1986 and 2008, he held several management positions with ABB. Mr. Duggan was born in 1959 and is an Irish citizen.

Greg Scheu was appointed President of the Americas region as well as Head of Group Service and Business Integration in January 2015 and has been a member of the Executive Committee since 2012. From 2013 to 2014, he was Head of Business Integration, Group Service and North America. From 2012 to 2013, he was Head of Marketing and Customer Solutions. Mr. Scheu, a former executive of Rockwell International, joined ABB in 2001 and was responsible for the integration of both Baldor Electric Co. and of Thomas & Betts into ABB. Mr. Scheu was born in 1961 and is a U.S. citizen.

In October 2016, it was announced that Mr. Elzvik will leave ABB in 2017 after facilitating the handover to his successor Timo Ihamuotila who will be

joining ABB from Nokia Corporation as CFO effective April 1, 2017.

Further information about the members of the Executive Committee can be found by clicking on the Executive Committee CV link at www.abb.com/about/corporate-governance

Mandates of EC members outside the ABB Group

No member of the EC may hold more than five additional mandates of which no more than one may be in a listed company. Certain types of mandates, such as those in our subsidiaries, those in the same group of companies and those in non-profit and charitable institutions, are not subject to those limits. Additional details can be found in Article 38 of ABB's Articles of Incorporation.

Business Relationships between ABB and its EC members

This section describes important business relationships between ABB and its EC members, or companies and organizations represented by them. This determination has been made based on ABB Ltd's Related Party Transaction Policy. This policy is contained in the ABB Ltd Board Regulations & Corporate Governance Guidelines.

Adecco S.A. (Adecco) is an important supplier to ABB. Adecco primarily supplies ABB with temporary personnel services. Jean-Christophe Deslarzes is a director of Adecco.

ABB has an unsecured syndicated $2-billion revolving credit facility. As of December 31, 2016, Barclays Bank plc (Barclays Bank) had committed to approximately $74 million out of the $2-billion total. In addition, ABB has regular banking business with Barclays. Diane de Saint Victor is a director of Barclays Bank and Barclays plc.

After reviewing the level of purchases from Adecco, and after reviewing the banking commitments of Barclays, the Board has determined that ABB's business relationships with those companies are not unusual in their nature or conditions and do not constitute material business relationships. This determination was made in accordance with ABB Ltd's Related Party Transaction Policy which was prepared based on the Swiss Code of Best Practice for Corporate Governance and the independence criteria set forth in the corporate governance rules of the New York Stock Exchange.

Shares

Share capital of ABB

At December 31, 2016, ABB's ordinary share capital (including treasury shares) as registered with the Commercial Register amounted to CHF 265,769,191.68, divided into 2,214,743,264 fully paid registered shares with a par value of CHF 0.12 per share.

ABB Ltd's shares are listed on the SIX Swiss Exchange, the NASDAQ OMX Stockholm Exchange and the New York Stock Exchange (where its shares are traded in the form of American depositary shares (ADS) – each ADS representing one registered ABB share). At December 31, 2016, ABB Ltd had a market capitalization based on outstanding shares (total number of outstanding shares: 2,138,706,835) was approximately CHF 46 billion ($45 billion, SEK 410 billion). The only consolidated subsidiary in the ABB Group with listed shares is ABB India Limited, Bangalore, India, which is listed on the BSE Ltd. (Bombay Stock Exchange) and the National Stock Exchange of India. On December 31, 2016, ABB Ltd, Switzerland, directly or indirectly owned 75 percent of ABB India Limited, Bangalore, India, which at that time had a market capitalization of approximately INR 220 billion.

Share repurchases and cancellation

Under the share buyback program announced in September 2014, ABB repurchased a total of 146,595,000 shares for cancellation. At ABB's General Meeting of Shareholders in 2016, the shareholders approved the cancellation of 100 million shares. This was completed in July 2016 after the required waiting period. As a result

Stock exchange listings (At December 31, 2016)			
Stock exchange	Security	Ticker symbol	ISIN code
SIX Swiss Exchange	ABB Ltd, Zurich, share	ABBN	CH0012221716
NASDAQ OMX Stockholm Exchange	ABB Ltd, Zurich, share	ABB	CH0012221716
New York Stock Exchange	ABB Ltd, Zurich, ADS	ABB	US0003752047
BSE Ltd. (Bombay Stock Exchange)	ABB India Limited, Bangalore, share	ABB*	INE117A01022
National Stock Exchange of India	ABB India Limited, Bangalore, share	ABB	INE117A01022

of the cancellation, the total number of ABB Ltd's issued shares is 2,214,743,264. ABB intends to ask the shareholders at the General Meeting of Shareholders in 2017 to approve the cancellation of the remaining 46,595,000 shares that were repurchased. Further information can be found at www.abb.com/investorrelations

Changes to the ordinary share capital

In 2016, ABB paid its dividend relating to the year 2015 by way of a nominal value reduction in the par value of its shares from CHF 0.86 to CHF 0.12. Corresponding adjustments were made to the par value of ABB's contingent and authorized shares. In 2015, ABB paid a portion of its dividend relating to the year 2014 by way of a nominal value reduction in the par value of its shares from CHF 1.03 to CHF 0.86. Corresponding adjustments were made to the par value of ABB's contingent and authorized shares. Except as described above, there were no changes to ABB's ordinary share capital during 2016, 2015 and 2014.

Convertible bonds and options

ABB does not have any bonds outstanding that are convertible into ABB shares. For information about options on shares issued by ABB, please refer to "Note 19 Stockholders' equity" to ABB's Consolidated Financial Statements contained in the "Financial review of the ABB Group" section of this Annual Report.

Contingent share capital

At December 31, 2016, ABB's share capital may be increased by an amount not to exceed CHF 24,000,000 through the issuance of up to 200,000,000 fully paid registered shares with a par value of CHF 0.12 per share through the exercise of conversion rights and/or warrants granted in connection with the issuance on national or international capital markets of newly or already issued bonds or other financial market instruments.

At December 31, 2016, ABB's share capital may be increased by an amount not to exceed CHF 1,200,000 through the issuance of up to 10,000,000 fully paid registered shares with a par value of CHF 0.12 per share through the exercise of warrant rights granted to its shareholders. The Board may grant warrant rights not taken up by shareholders for other purposes in the interest of ABB.

The pre-emptive rights of the shareholders are excluded in connection with the issuance of convertible or warrant-bearing bonds or other financial market instruments or the grant of warrant rights. The then current owners of conversion rights and/or warrants will be entitled to subscribe for new shares. The conditions of the conversion rights and/or warrants will be determined by the Board.

The acquisition of shares through the exercise of warrants and each subsequent transfer of the shares will be subject to the restrictions of ABB's Articles of Incorporation (see "Limitations on transferability of shares and nominee registration" in "Shareholders" section below).

In connection with the issuance of convertible or warrant-bearing bonds or other financial market instruments, the Board is authorized to restrict or deny the advance subscription rights of shareholders if such bonds or other financial market instruments are for the purpose of financing or refinancing the acquisition of an enterprise, parts of an enterprise, participations or new investments or an issuance on national or international capital markets. If the Board denies advance subscription rights, the convertible or warrant-bearing bonds or other financial market instruments will be issued at the relevant market conditions and the new shares will be issued pursuant to the relevant market conditions taking into account the share price and/or other comparable instruments having a market price. Conversion rights may be exercised during a maximum ten-year period, and warrants may be exercised during a maximum seven-year period, in each case from the date of the respective issuance. The advance subscription rights of the shareholders may be granted indirectly.

At December 31, 2016, ABB's share capital may be increased by an amount not to exceed CHF 11,284,656

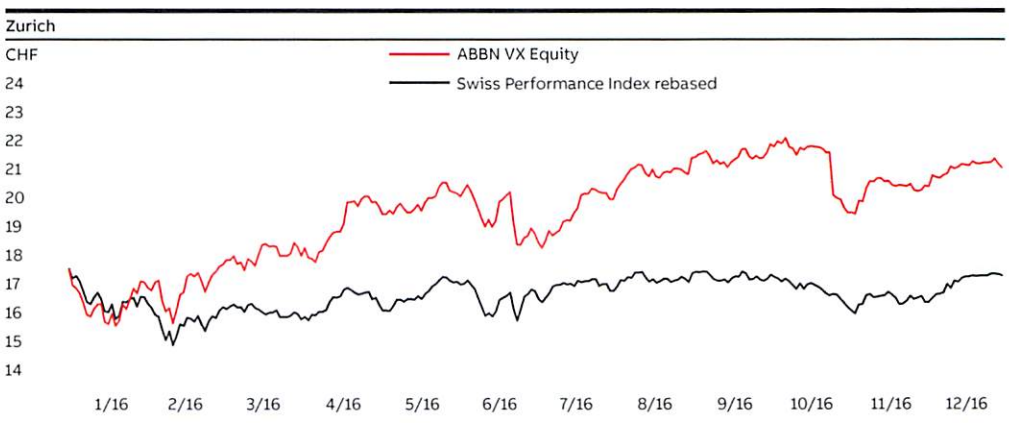
through the issuance of up to 94,038,800 fully paid shares with a par value of CHF 0.12 per share to employees. The pre-emptive and advance subscription rights of ABB's shareholders are excluded. The shares or rights to subscribe for shares will be issued to employees pursuant to one or more regulations to be issued by the Board, taking into account performance, functions, level of responsibility and profitability criteria. ABB may issue shares or subscription rights to employees at a price lower than that quoted on a stock exchange. The acquisition of shares within the context of employee share ownership and each subsequent transfer of the shares will be subject to the restrictions of ABB's Articles of Incorporation (see "Limitations on transferability of shares and nominee registration" in "Shareholders" section below).

Authorized share capital

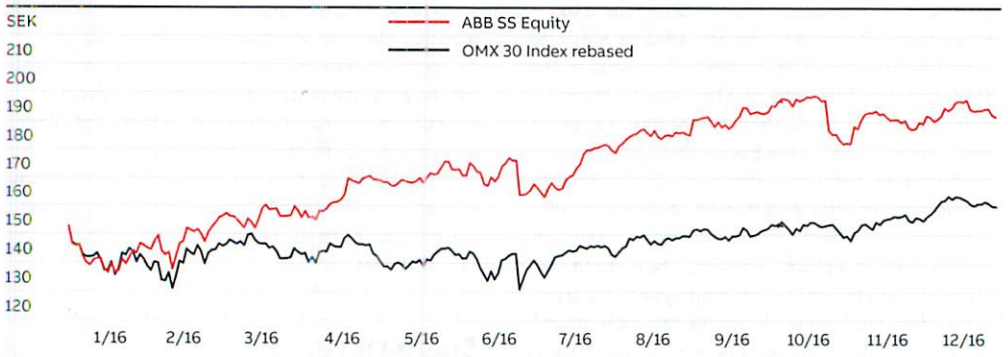
At December 31, 2016, ABB had an authorized share capital in the amount of up to CHF 24,000,000 through the issuance of up to 200,000,000 fully paid registered shares with a par value of CHF 0.12 each, which is valid through April 29, 2017. The Board is authorized to determine the date of issue of new shares, the issue price, the type of payment, the conditions for the exercise of pre-emptive rights and the beginning date for dividend entitlement. In this regard, the Board may issue new shares by means of a firm underwriting through a banking institution, a syndicate or another third party with a subsequent offer of these shares to the shareholders. The Board may permit pre-emptive rights that have not been exercised by shareholders to expire or it may place these rights and/or shares as to which pre-emptive rights have been granted but not exercised at market conditions or use them for other purposes in the interest of the company. Furthermore, the Board is authorized to restrict or deny the pre-emptive rights of shareholders and allocate such rights to third parties if the shares are used (1) for the acquisition of an enterprise, parts of an enterprise, or participations, or for new investments, or in case of a share placement, for the financing or refinancing of such transactions; or (2) for the purpose of broadening the shareholder constituency in connection with a listing of shares on domestic or foreign stock exchanges. The subscription and the acquisition of the new shares, as well as each subsequent transfer of the shares, will be subject to the restrictions of ABB's Articles of Incorporation.

Share Developments

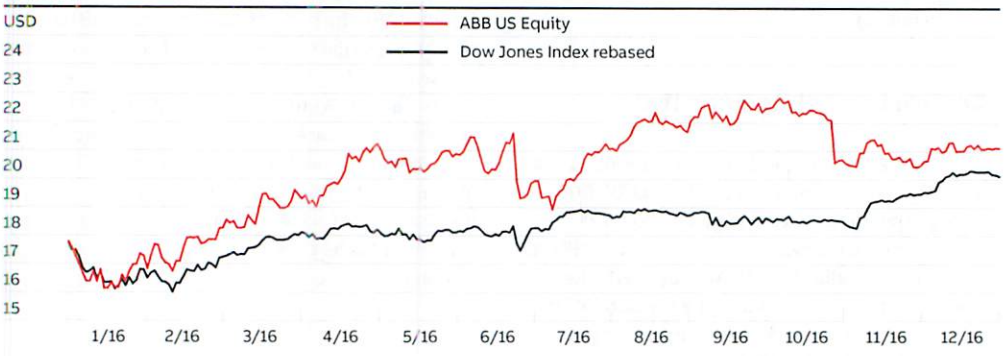
ABB Ltd share price trend during 2016
During 2016, the price of ABB Ltd shares listed on the SIX Swiss Exchange increased 20 percent, while the Swiss Performance Index decreased 1 percent. The price of ABB Ltd shares on NASDAQ OMX Stockholm increased 26 percent, compared to the OMX 30 Index, which increased 5 percent. The price of ABB Ltd American Depositary Shares traded on the New York Stock Exchange increased 19 percent compared to the Dow Jones Industrial Index, which increased 13 percent.



Stockholm



New York



Share price (data based on closing prices)

2016	SIX Swiss Exchange (CHF)	NASDAQ OMX Stockholm (SEK)	New York Stock Exchange (USD)
High	22.49	199.00	22.88
Low	16.04	137.10	16.06
Year-end	21.48	191.80	21.07
Average daily traded number of shares, in millions	6.18	1.43	1.98

Source: Bloomberg

Dividends

With respect to the year ended December 31, 2016, ABB Ltd's Board of Directors has proposed to distribute a dividend to shareholders in the amount of CHF 0.76 per share. This is subject to approval by shareholders at ABB Ltd's 2017 Annual General Meeting. The proposal is in line with the company's dividend policy to pay a steadily rising, sustainable dividend over time.

Key data

	2016	2015	2014
Dividend per share (CHF)	0.76[1]	0.74	0.72
Par value per share (CHF)	0.12	0.86	1.03
Votes per share	1	1	1
Basic earnings per share (USD)[2]	0.88	0.87	1.13
Total ABB stockholders' equity per share (USD)[3]	6.26	6.61	7.20
Cash flow from operations per share (USD)[2]	1.79	1.72	1.68
Dividend payout ratio (%)[4]	84%	85%	64%
Weighted-average number of shares outstanding (in millions)	2,151	2,226	2,288

(1) Proposed by the Board of Directors and subject to approval by shareholders at the Annual General Meeting on April 13, 2017, in Zurich, Switzerland.
(2) Calculation based on weighted-average number of shares outstanding.
(3) Calculation based on the number of shares outstanding at December 31, 2016.
(4) Dividend per share (converted to U.S. dollars at year-end exchange rates) divided by basic earnings per share.

Shareholders

Shareholder structure

As of December 31, 2016, the total number of shareholders directly registered with ABB Ltd was approximately 142,000 and another 198,000 shareholders held shares indirectly through nominees. In total as of that date, ABB had approximately 340,000 shareholders.

Significant shareholders

Investor AB, Sweden, held 232,165,142 ABB shares as of December 31, 2016. This holding represents approximately 10.48 percent of ABB's total share capital and voting rights as registered in the Commercial Register on December 31, 2016. The number of shares held by Investor AB does not include shares held by Jacob Wallenberg, the chairman of Investor AB and a director of ABB, in his individual capacity.

Cevian Capital II GP Limited, Channel Islands, disclosed that as per February 23, 2017, on behalf of its general partners, it held 115,868,333 ABB shares. This holding represents approximately 5.23 percent of ABB's total share capital and voting rights as registered in the Commercial Register on December 31, 2016.

BlackRock Inc., New York, U.S., disclosed that as per July 25, 2011, it, together with its direct and indirect subsidiaries, held 69,702,100 ABB shares. This holding represents 3.15 percent of ABB's total share capital and voting rights as registered in the Commercial Register on December 31, 2016.

To the best of ABB's knowledge, no other shareholder held 3 percent or more of ABB's total share capital and voting rights as registered in the Commercial Register on December 31, 2016.

ABB Ltd has no cross shareholdings in excess of 5 percent of capital, or voting rights with any other company.

Under ABB's Articles of Incorporation, each registered share represents one vote. Significant shareholders do not have different voting rights. To our knowledge, we are not directly or indirectly owned or controlled by any government or by any other corporation or person.

Shareholders' rights

Shareholders have the right to receive dividends, to vote and to execute such other rights as granted under Swiss law and ABB's Articles of Incorporation.

Right to vote
ABB has one class of shares and each registered share carries one vote at the general meeting. Voting rights may be exercised only after a shareholder has been registered in the share register of ABB as a shareholder with the right to vote, or with Euroclear Sweden AB (Euroclear), which maintains a subregister of the share register of ABB.

A shareholder may be represented at the Annual General Meeting by its legal representative, by another shareholder with the right to vote or the independent proxy elected by the shareholders (unabhängiger Stimmrechtsvertreter). If the Company does not have an independent proxy, the Board of Directors shall appoint the independent proxy for the next General Meeting of Shareholders. All shares held by one shareholder may be represented by one representative only.

For practical reasons shareholders must be registered in the share register no later than 6 business days before the general meeting in order to be entitled to vote. Except for the cases described under section "Limitations on transferability of shares and nominee registration" below, there are no voting rights restrictions limiting ABB's shareholders' rights.

Powers of General Meetings
The Ordinary General Meeting of Shareholders shall be held each year within six months after the close of the fiscal year of the Company; the business report, the compensation report and the Auditors' reports must be made available for inspection by the shareholders at the place of incorporation of the Company by no later than twenty days prior to the meeting. Each shareholder is entitled to request immediate delivery of a copy of these documents.

The following powers must be vested exclusively in the General Meeting of Shareholders:
- Adoption and amendment of the Articles of Incorporation
- Election of the members of the Board of Directors, the Chairman of the Board of Directors, the members of the Compensation Committee, the Auditors and the independent proxy

- Approval of the annual management report and consolidated financial statements
- Approval of the annual financial statements and decision on the allocation of profits shown on the balance sheet, in particular with regard to dividends
- Approval of the maximum compensation of the Board of Directors and of the Executive Committee pursuant to Article 34 of the Articles of Incorporation
- Granting discharge to the members of the Board of Directors and the persons entrusted with management
- Passing resolutions as to all matters reserved to the authority of the General Meeting by law or under the Articles of Incorporation or that are submitted to the General Meeting by the Board of Directors, subject to article 716a of the Swiss Code of Obligations.

Resolutions and elections at General Meetings
Shareholders' resolutions at general meetings are approved with an absolute majority of the votes represented at the meeting, except for those matters described in article 704 of the Swiss Code of Obligations and for resolutions with respect to restrictions on the exercise of the right to vote and the removal of such restrictions, which all require the approval of two-thirds of the votes represented at the meeting.

At December 31, 2016, shareholders representing shares of a par value totaling at least CHF 48,000 may require items to be included in the agenda of a general meeting. Any such request must be made in writing at least 40 days prior to the date of the general meeting and specify the items and the motions of such shareholder(s).

ABB's Articles of Incorporation do not contain provisions on the convocation of the general meeting of shareholders that differ from the applicable legal provisions.

Shareholders' dividend rights
The unconsolidated statutory financial statements of ABB Ltd are prepared in accordance with Swiss law. Based on these financial statements, dividends may be paid only if ABB Ltd has sufficient distributable profits from previous years or sufficient free reserves to allow the distribution of a dividend. Swiss law requires that ABB Ltd retain at least 5 percent of its annual net profits as legal reserves until these reserves amount to at least 20 percent of ABB Ltd's share capital. Any net profits remaining in excess of those reserves are at the disposal of the shareholders' meeting.

Under Swiss law, ABB Ltd may only pay out a dividend if it has been proposed by a shareholder or the Board of Directors and approved at a general meeting of shareholders, and the auditors confirm that the dividend conforms to statutory law and ABB's Articles of Incorporation. In practice, the shareholders' meeting usually approves dividends as proposed by the Board of Directors, if the Board of Directors' proposal is confirmed by the statutory auditors as compliant with Swiss law and ABB's Articles of Incorporation.

Dividends are usually due and payable no earlier than two trading days after the shareholders' resolution and the ex-date for dividends is normally two trading days after the shareholders' resolution approving the dividend. Dividends are paid out to the holders that are registered on the record date. Euroclear administers the payment of those shares registered with it. Under Swiss law, dividends not collected within five years after the due date accrue to ABB Ltd and are allocated to its other reserves. As ABB Ltd pays cash dividends, if any, in Swiss francs (subject to the exception for certain shareholders in Sweden described below), exchange rate fluctuations will affect the U.S. dollar amounts received by holders of ADSs upon conversion of those cash dividends by Citibank, N.A., the depositary, in accordance with the Amended and Restated Deposit Agreement dated May 7, 2001.

For shareholders who are residents of Sweden, ABB has established a dividend access facility (for up to 600,004,716 shares). With respect to any annual dividend payment for which this facility is made available, shareholders who register with Euroclear may elect to receive the dividend from ABB Norden Holding AB in Swedish krona (in an amount equivalent to the dividend paid in Swiss francs) without deduction of Swiss withholding tax. For further information on the dividend access facility, see ABB Ltd's Articles of Incorporation.

Limitations on transferability of shares and nominee registration
ABB may decline a registration with voting rights if a shareholder does not declare that it has acquired the shares in its own name and for its own account. If the shareholder refuses to make such declaration, it will be registered as a shareholder without voting rights. A person failing to expressly declare in its registration/application that it holds the shares for its own account (a nominee), will be entered in the share register with voting rights, provided that such nominee has entered into an agreement with ABB concerning its status, and further provided that the nominee is subject to recognized bank or financial market supervision. In special cases the Board may grant exemptions. There were no exemptions granted in 2016. The limitation on the transferability of shares may be removed by an amendment of ABB's Articles of Incorporation by

a shareholders' resolution requiring two-thirds of the votes represented at the meeting.

No restriction on trading of shares
No restrictions are imposed on the transferability of ABB shares. The registration of shareholders in the ABB Share register, Euroclear and the ADS register kept by Citibank does not affect transferability of ABB shares or ADSs. Registered ABB shareholders or ADR holders may therefore purchase or sell their ABB shares or ADRs at any time, including before a General Meeting regardless of the record date. The record date serves only to determine the right to vote at a General Meeting.

Duty to make a public tender offer
ABB's Articles of Incorporation do not contain any provisions raising the threshold (opting up) or waiving the duty (opting out) to make a public tender offer pursuant to article 32 of the Swiss Stock Exchange and Securities Trading Act.

Independent External Auditors

Duration of the mandate and term of office of the auditor

Ernst & Young are the auditors of ABB's statutory and consolidated financial statements. Ernst & Young assumed the sole auditing mandate of the consolidated financial statements of the ABB Group beginning in the year ended December 31, 2001 (having previously been joint auditors since 1994). The auditor in charge and responsible for the mandate, Leslie Clifford, began serving in this function in respect of the financial year ended December 31, 2013. Pursuant to the Articles of Incorporation, the term of office of ABB's auditors is one year.

Information to the Board and the Audit and Compliance Committee

Supervisory and control instruments vis-à-vis the auditors
The FACC prepares proposals to the Board for the appointment and removal of the auditors. The FACC is also responsible for supervising the auditors to ensure their qualifications, independence and performance. It meets regularly with the auditors, at least four times each calendar year, to obtain reports about the results of their audit procedures. The FACC reports the material elements of its supervision of the auditors to the Board.

Audit and additional fees paid to the auditor

The audit fees charged by Ernst & Young for the legally prescribed audit amounted to $24.9 million in 2016. Audit services are defined as the standard audit work performed each fiscal year necessary to allow the auditors to issue an opinion on the consolidated financial statements of ABB and to issue an opinion on the local statutory financial statements.

This classification may also include services that can be provided only by the auditors, such as pre-issuance reviews of quarterly financial results and comfort letters delivered to underwriters in connection with debt and equity offerings.

In addition, Ernst & Young charged $4.6 million for non-audit services performed during 2016. Non-audit services include primarily accounting consultations, audits of pension and benefit plans, accounting advisory services, other attest services related to financial reporting that are not required by statute or regulation, income tax and indirect tax compliance services and tax advisory services. In accordance with the requirements of the U.S. Sarbanes-Oxley Act of 2002 and rules issued by the SEC, ABB has, on a global basis, a process for the review and pre-approval of audit and non-audit services to be performed by Ernst & Young.

Other governance information

ABB Group organizational structure

ABB Ltd is the ultimate parent company of the ABB Group. Its sole shareholding is in ABB Asea Brown Boveri Ltd which directly or indirectly owns the other companies in the ABB Group. The table in the appendix to this Corporate governance report sets forth, as of December 31, 2016, the name, place of incorporation, ownership interest and share capital of the significant direct and indirect subsidiaries of ABB Ltd, Switzerland. ABB's operational group structure is described in the "Financial review of ABB Group" section of this Annual Report under "Operating and financial review and prospects – Organizational structure".

Management contracts

There are no management contracts between ABB and companies or natural persons not belonging to the ABB Group.

Change of control clauses

Board members, Executive Committee members, and other members of senior management do not receive any special benefits in the event of a change of control. However, the conditional grants under the Long Term Incentive Plan and the Management Incentive Plan may be subject to accelerated vesting in the event of a change of control.

Employee participation programs

In order to align its employees' interests with the business goals and financial results of the company, ABB operates a number of incentive plans, linked to ABB's shares, such as the Employee Share Acquisition Plan, the Management Incentive Plan and the Long Term Incentive Plan. For a more detailed description of these incentive plans, please refer to "Note 18 Share-based payment arrangements" to ABB's Consolidated Financial Statements contained in the "Financial review of ABB Group" section of this Annual Report.

ABB's policy on tax

ABB acts as a responsible global corporate tax citizen in compliance with applicable tax law and regulations. It is ABB's policy to provide transparent and comprehensive information to tax administrations in order to facilitate their understanding of the tax-related decisions taken by ABB. Further information regarding our tax policy can be accessed at www.abb.com/sustainability

Governance differences from NYSE Standards

According to the New York Stock Exchange's corporate governance standards (the Standards), ABB is required to disclose significant ways in which its corporate governance practices differ from the Standards. ABB has reviewed the Standards and concluded that its corporate governance practices are generally consistent with the Standards, with the following significant exceptions:

- Swiss law requires that the external auditors be elected by the shareholders at the Annual General Meeting rather than by the audit committee or the board of directors.
- The Standards require that all equity compensation plans and material revisions thereto be approved by the shareholders. Consistent with Swiss law such matters are decided by our Board. However, the shareholders decide about the creation of new share capital that can be used in connection with equity compensation plans.
- Swiss law requires that the members of the compensation committee are elected by the shareholders rather than appointed by our Board.
- Swiss law requires shareholders to approve the maximum aggregate Board compensation and the maximum aggregate Executive Committee compensation.

Information policy

ABB, as a publicly traded company, is committed to communicating in a timely and consistent way to shareholders, potential investors, financial analysts, customers, suppliers, the media and other interested parties. ABB is required to disseminate material information pertaining to its businesses in a manner that complies with its

obligations under the rules of the stock exchanges where its shares are listed and traded.

ABB publishes an annual report that provides audited financial statements and information about ABB including our business results, strategy, products and services, corporate governance and executive compensation. ABB also submits an annual report on Form 20-F to the SEC. In addition, ABB publishes its results on a quarterly basis as press releases, distributed pursuant to the rules and regulations of the stock exchanges on which its shares are listed and traded. Press releases relating to financial results and material events are also filed with the SEC on Form 6-K. An archive containing Annual Reports, Form 20-F reports, quarterly results releases and related presentations can be found in the "Financial results and presentations" section at www.abb.com/investorrelations. The quarterly results press releases contain unaudited financial information prepared in accordance with or reconciled to U.S. GAAP. To subscribe to important press releases, please click on the "Contacts and Services" and choose "Subscribe to updates" at www.abb.com/investorrelations. Ad hoc notices can also be found in the press releases section at www.abb.com/news

ABB's official means of communication is the Swiss Official Gazette of Commerce (www.shab.ch). The invitation to the company's Annual General Meeting is sent to registered shareholders by mail.

Inquiries may also be made to ABB Investor Relations:

Affolternstrasse 44
CH-8050 Zurich, Switzerland
Telephone: +41 43 317 7111
Fax: +41 44 311 9817
E-mail: investorrelations@ch.abb.com
ABB's website is: www.abb.com

Further information on corporate governance

The list below contains references to additional information concerning the corporate governance of ABB, which can be accessed at www.abb.com/about/corporate-governance

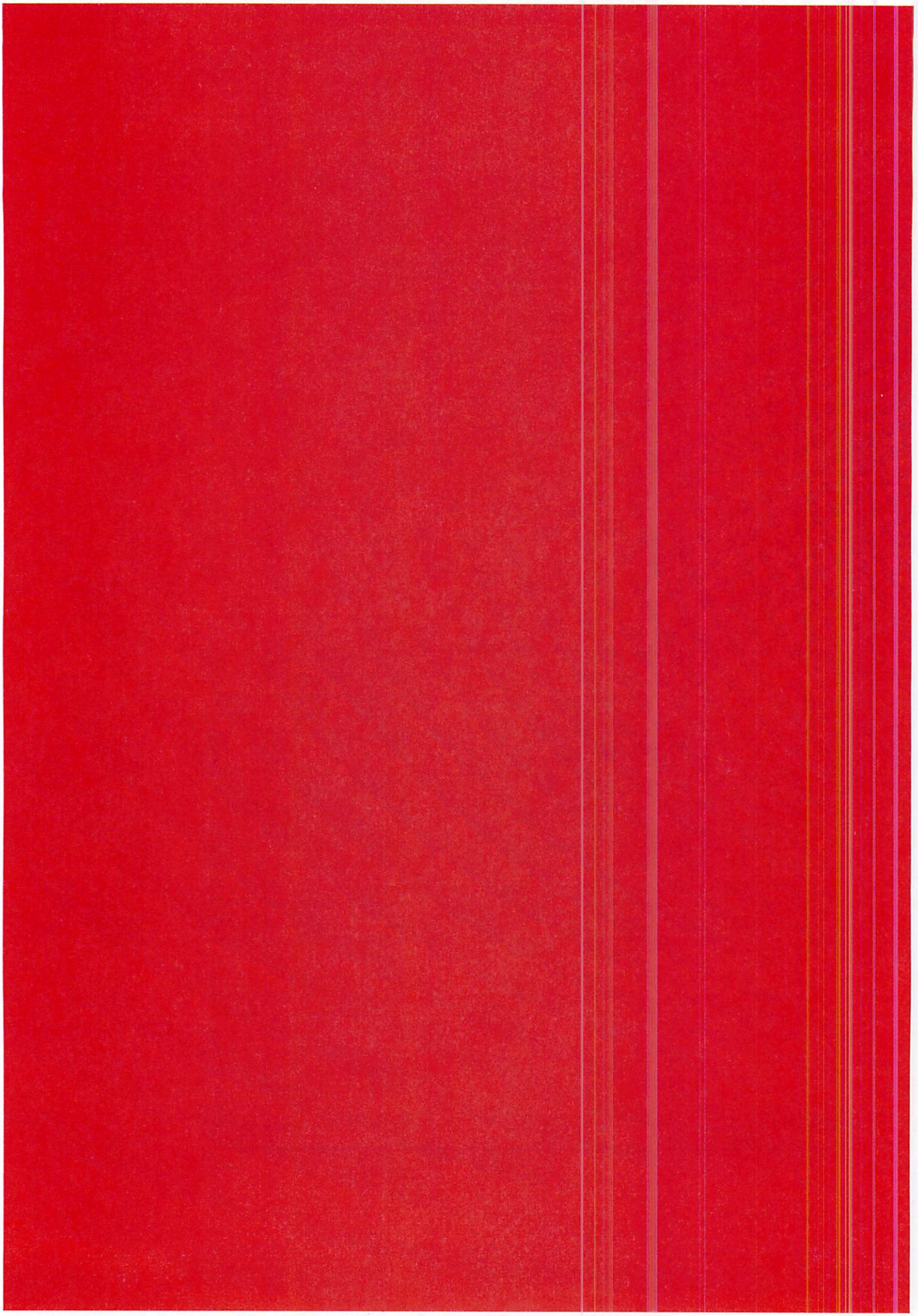
- Articles of Incorporation
- ABB Ltd Board Regulations & Corporate Governance Guidelines
- Regulations of the Finance, Audit and Compliance Committee
- Regulations of the Governance and Nomination Committee
- Regulations of the Compensation Committee
- Related Party Transaction Policy
- ABB Code of Conduct
- Addendum to the ABB Code of Conduct for Members of the Board of Directors and the Executive Committee
- Comparison of ABB's corporate governance practices to the New York Stock Exchange rules
- Summary of differences of shareholder rights under Swedish and Swiss Law applicable to ABB
- CVs of the Board members
- CVs of the Executive Committee members

Appendix - ABB Ltd's significant subsidiaries

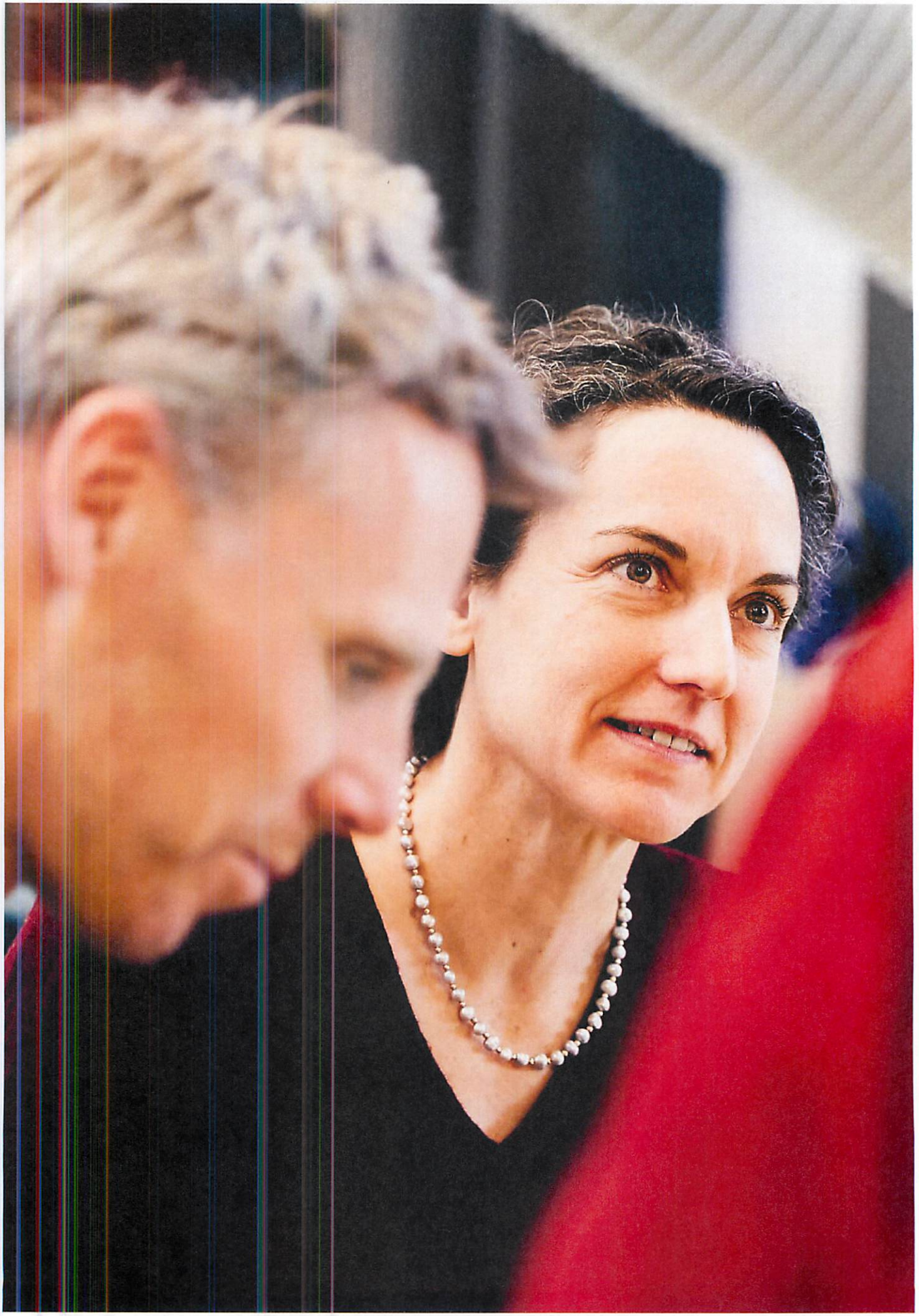
Company name/location	Country	ABB interest %	Share capital in thousands	Currency
SARPI - Société Algérienne pour la réalisation de projets industriels, Alger	Algeria	50.00	814,500	DZD
ABB S.A., Buenos Aires	Argentina	100.00	278,860	ARS
ABB Australia Pty Limited, Moorebank, NSW	Australia	100.00	131,218	AUD
ABB Group Investment Management Pty. Ltd., Moorebank, NSW	Australia	100.00	355,312	AUD
ABB N.V., Zaventem	Belgium	100.00	13,290	EUR
ABB Ltda., Osasco	Brazil	100.00	689,793	BRL
ABB Bulgaria EOOD, Sofia	Bulgaria	100.00	65,110	BGN
ABB Canada Holding Limited Partnership, Saint-Laurent, Quebec	Canada	100.00	—	CAD
ABB Inc., Saint-Laurent, Quebec	Canada	100.00	—[1]	CAD
Thomas & Betts Limited, Saint-Jean-sur-Richelieu, Quebec	Canada	100.00	—[1]	CAD
ABB Beijing Drive Systems Co. Ltd., Beijing	China	90.00	5,000	USD
ABB (China) Ltd., Beijing	China	100.00	310,000	USD
ABB Engineering (Shanghai) Ltd., Shanghai	China	100.00	40,000	USD
ABB High Voltage Switchgear Co. Ltd., Beijing	China	60.00	11,400	USD
ABB Xiamen Low Voltage Equipment Co. Ltd., Xiamen	China	100.00	15,800	USD
ABB Xiamen Switchgear Co. Ltd., Xiamen	China	64.30	23,500	USD
ABB Xinhui Low Voltage Switchgear Co. Ltd., Xinhui	China	90.00	6,200	USD
ABB s.r.o., Prague	Czech Republic	100.00	400,000	CZK
ABB A/S, Skovlunde	Denmark	100.00	100,000	DKK
ABB for Electrical Industries (ABB ARAB) S.A.E., Cairo	Egypt	100.00	353,479	EGP
Asea Brown Boveri S.A.E., Cairo	Egypt	100.00	166,000	USD
ABB AS, Jüri	Estonia	100.00	1,663	EUR
ABB Oy, Helsinki	Finland	100.00	10,003	EUR
ABB France, Cergy Pontoise	France	99.83	25,778	EUR
ABB S.A., Cergy Pontoise	France	100.00	45,921	EUR
ABB AG, Mannheim	Germany	100.00	167500	EUR
ABB Automation GmbH, Mannheim	Germany	100.00	15,000	EUR
ABB Automation Products GmbH, Ladenburg	Germany	100.00	10,620	EUR
ABB Beteiligungs- und Verwaltungsges. mbH, Mannheim	Germany	100.00	61,355	EUR
ABB Stotz-Kontakt GmbH, Heidelberg	Germany	100.00	7,500	EUR
Busch-Jaeger Elektro GmbH, Lüdenscheid	Germany	100.00	1,535	EUR
ABB Holding Ltd., Hong Kong	Hong Kong	100.00	27,887	HKD
ABB (Hong Kong) Ltd., Hong Kong	Hong Kong	100.00	20,000	HKD
ABB Global Industries and Services Private Limited, Bangalore	India	100.00	408,930	INR
ABB India Limited, Bangalore	India	75.00	423,817	INR
ABB S.p.A., Milan	Italy	100.00	110,000	EUR
Power-One Italy S.p.A., Terranuova Bracciolini (AR)	Italy	100.00	22,000	EUR
ABB K.K., Tokyo	Japan	100.00	1,000,000	JPY
ABB Ltd., Seoul	Korea, Republic of	100.00	18,670,000	KRW
ABB Holdings Sdn. Bhd., Subang Jaya	Malaysia	100.00	4,490	MYR
ABB Malaysia Sdn. Bhd., Subang Jaya	Malaysia	100.00	3,500	MYR
ABB Mexico S.A. de C.V., San Luis Potosi SLP	Mexico	100.00	633,368	MXN
Asea Brown Boveri S.A. de C.V., San Luis Potosi SLP	Mexico	100.00	667,686	MXN
ABB B.V., Rotterdam	Netherlands	100.00	9,200	EUR
ABB Capital B.V., Rotterdam	Netherlands	100.00	1,000	USD
ABB Finance B.V., Rotterdam	Netherlands	100.00	20	EUR
ABB Holdings B.V., Rotterdam	Netherlands	100.00	119	EUR
ABB Investments B.V., Rotterdam	Netherlands	100.00	100	EUR
ABB AS, Billingstad	Norway	100.00	250,000	NOK
ABB Holding AS, Billingstad	Norway	100.00	240,000	NOK
ABB Sp. z o.o., Warsaw	Poland	99.92	350,656	PLN
ABB Ltd., Moscow	Russian Federation	100.00	5,686	RUB
ABB Contracting Company Ltd., Riyadh	Saudi Arabia	65.00	40,000	SAR
ABB Electrical Industries Ltd., Riyadh	Saudi Arabia	65.00	168,750	SAR
ABB Holdings Pte. Ltd., Singapore	Singapore	100.00	32,797	SGD

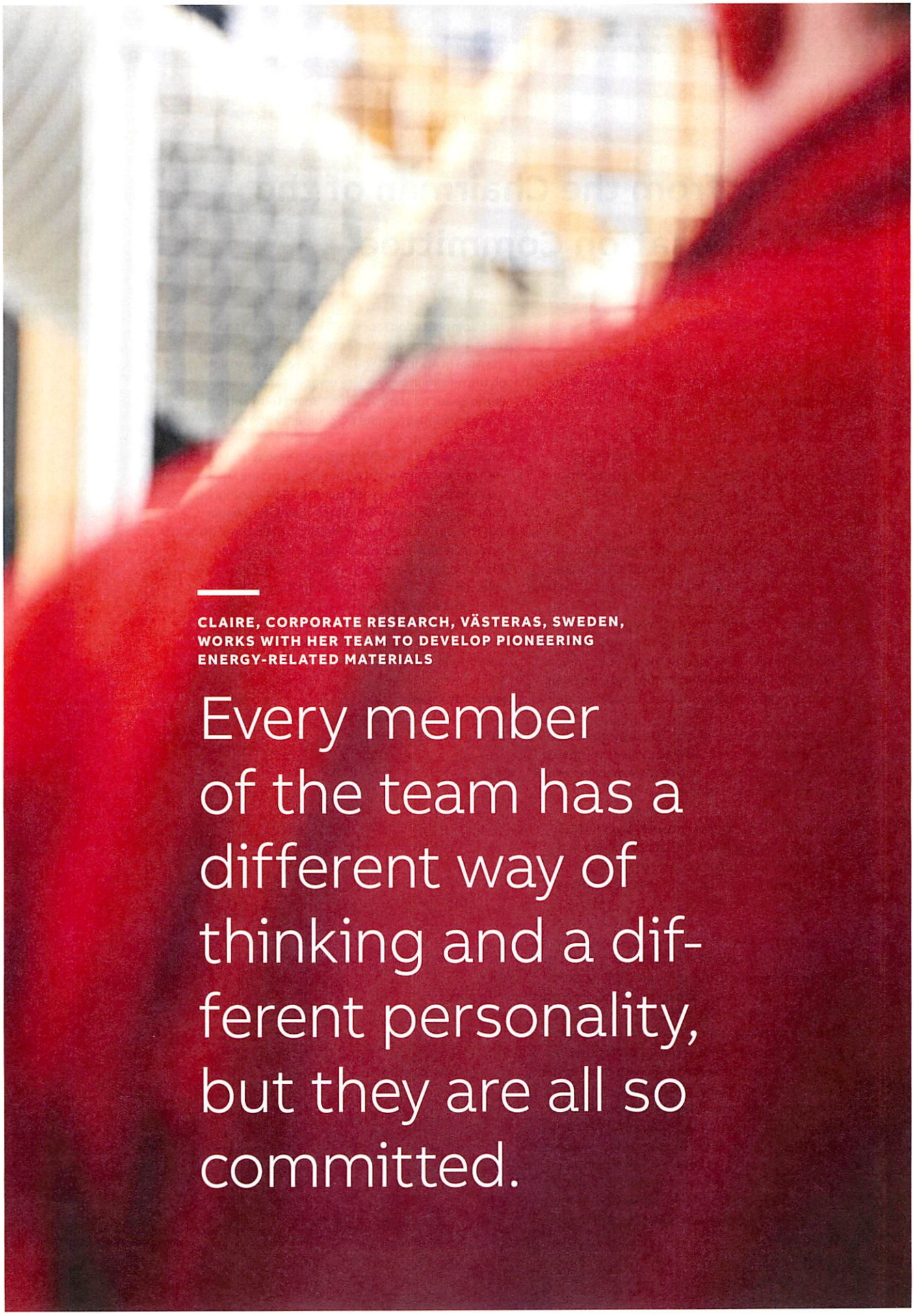
Company name/location	Country	ABB interest %	Share capital in thousands	Currency
ABB Pte. Ltd., Singapore	Singapore	100.00	28,842	SGD
ABB Holdings (Pty) Ltd., Longmeadow	South Africa	100.00	4,050	ZAR
ABB South Africa (Pty) Ltd., Longmeadow	South Africa	74.91	1	ZAR
Asea Brown Boveri S.A., Madrid	Spain	100.00	33,318	EUR
ABB AB, Västerås	Sweden	100.00	400,000	SEK
ABB Norden Holding AB, Västerås	Sweden	100.00	2,344,783	SEK
ABB Asea Brown Boveri Ltd, Zurich	Switzerland	100.00	2,768,000	CHF
ABB Information Systems Ltd., Zurich	Switzerland	100.00	500	CHF
ABB Investment Holding GmbH, Zurich	Switzerland	100.00	92,054	CHF
ABB Management Services Ltd., Zurich	Switzerland	100.00	571	CHF
ABB Schweiz AG, Baden	Switzerland	100.00	55,000	CHF
ABB Turbo Systems AG, Baden	Switzerland	100.00	10,000	CHF
ABB LIMITED, Bangkok	Thailand	100.00	1,034,000	THB
ABB Elektrik Sanayi A.S., Istanbul	Turkey	99.95	13,410	TRY
ABB Industries (L.L.C.), Dubai	United Arab Emirates	49.00[2]	5,000	AED
ABB Holdings Limited, Warrington	United Kingdom	100.00	226,014	GBP
ABB Limited, Warrington	United Kingdom	100.00	120,000	GBP
ABB Finance (USA) Inc., Wilmington, DE	United States	100.00	1	USD
ABB Holdings Inc., Cary, NC	United States	100.00	2	USD
ABB Inc., Cary, NC	United States	100.00	1	USD
ABB Treasury Center (USA), Inc., Wilmington, DE	United States	100.00	1	USD
Baldor Electric Company, Fort Smith, AR	United States	100.00	–	USD
Edison Holding Corporation, Wilmington, DE	United States	100.00	10	USD
Thomas & Betts Corporation, Knoxville, TN	United States	100.00	1	USD
Verdi Holding Corporation, Wilmington, DE	United States	100.00	–	USD

(1) Shares without par value
(2) Company consolidated as ABB exercises full management control



03
Compensation report





CLAIRE, CORPORATE RESEARCH, VÄSTERAS, SWEDEN, WORKS WITH HER TEAM TO DEVELOP PIONEERING ENERGY-RELATED MATERIALS

Every member of the team has a different way of thinking and a different personality, but they are all so committed.

Letter from the Chairman of the Compensation Committee

Dear shareholder,

On behalf of the Board of Directors (Board) and the Compensation Committee (CC), I am pleased to present the Compensation report for 2016.

Following the election of the CC at the 2016 Annual General Meeting (AGM), we welcomed Frederico Fleury Curado as a new member of the Board and the CC, to which he brings his extensive international experience and expertise.

In 2016, ABB continued with the implementation of the Next Level Strategy and the launch of Stage 3. The successful execution of the Next Level Strategy has led to significant improvements of the company's performance and to a stronger external focus. The Compensation report explains how these results impacted the variable incentive payments made to the Executive Committee (EC) members under the various compensation components.

For the 2015–2016 term of office, aggregate Board compensation increased by 25 percent compared with the previous year, due to the expansion of the Board from 8 to 11 members.

Aggregate EC compensation was lower in 2016 than in 2015, principally due to a reduction in the number of EC members as part of the organizational realignment under Stage 2 of the Next Level Strategy.

During the reporting year, the CC continued to review ABB's compensation programs in order to ensure their alignment with Stage 3 of the Next Level Strategy. In this context, we further improved the focus on performance in our short-term and long-term variable compensation plans, effective for 2017. Furthermore, the CC performed its regular activities throughout the year such as the performance goal setting at the beginning of the year and the performance assessment following the year-end, the determination of the compensation of the Board and the EC members, as well as the preparation of the Compensation report and of the "say-on-pay" vote at the AGM. You will find further information on our activities and on ABB's compensation system and governance in the following pages.

This Compensation report will be submitted to a non-binding, consultative vote by shareholders at the AGM in April 2017. You will also be asked to vote on the maximum aggregate compensation amount of the Board for the 2017–2018 Board term and on the maximum aggregate EC compensation for 2018.

Looking ahead, we will continue to assess and review our compensation programs to ensure that they are still fulfilling their purpose and are aligned with the interests of our shareholders. We encourage and pursue an open and regular dialogue with our stakeholders. Your feedback is highly valued and appreciated as we continue to evolve the compensation system. On behalf of ABB and the CC, as well as the Board, I would like to thank you for your continued trust in ABB and for your consistently constructive and supportive feedback regarding our compensation framework.

Michel de Rosen
Chairman of the Compensation Committee
Zurich, March 10, 2017

Compensation report

Exhibit 1: Overview of total compensation (in CHF)

	Board term	
Board of Directors	**2016–2017**	**2015–2016**
Number of members	11 members	8 members
Total compensation	4,670,000	3,730,000
Maximum aggregate compensation amount approved at AGM	4,700,000	4,500,000
	Calendar year	
Executive Committee	**2016**	**2015**
Number of members	11 members	12 members
Total compensation	44,200,719	45,521,908
Maximum aggregate compensation amount approved at AGM	52,000,000	not subject to shareholders' vote

Compensation governance

Shareholders' engagement
Shareholders have been given a greater say on compensation matters in recent years. They approve the Articles of Incorporation that outline the principles of compensation, including the requirement for shareholders each year to approve the maximum aggregate compensation amounts of the Board and the EC. The provisions of the Articles of Incorporation on compensation can be found on ABB's Corporate governance website www.abb.com/about/corporate-governance and are summarized below:

- **Compensation Committee** (Articles 28 to 31): The CC is composed of a minimum of three members who are elected individually by the shareholders at the AGM for a period of one year. The CC supports the Board in establishing and reviewing the compensation strategy, principles and programs, in preparing the proposals to the AGM on compensation matters and in determining the compensation of the Board and of the EC. The responsibilities of the CC are defined in more detail in the ABB Ltd Board Regulations & Corporate Governance Guidelines, which are available on ABB's Corporate governance website.
- **Compensation principles** (Article 33): Compensation of the members of the Board consists of fixed compensation only. Compensation of the members of the EC consists of fixed and variable compensation. Variable compensation may comprise short-term and long-term elements. Compensation may be paid in cash, shares or other benefits.
- **"Say-on-pay" votes** (Article 34): Shareholders approve the maximum aggregate amount of compensation of the Board for the following Board term and of the EC for the following financial year.
- **Supplementary amount for new EC members** (Article 35): If the maximum approved aggregate compensation amount is not sufficient to also cover the compensation of newly promoted/hired EC members, up to 30 percent of the last approved maximum aggregate amount shall be available as a supplementary amount to cover the compensation of such new EC members.
- **Credits** (Article 37): Credits may not be granted to members of the Board or of the EC.

Shareholders also have a consultative vote on the prior year's Compensation report at the AGM. The Compensation report describes the compensation principles and programs as well as the governance framework related to the compensation of the Board and EC. The report also provides details of the compensation awarded to the members of the Board and of the EC in the prior calendar year.

The Compensation report is written in accordance with the Ordinance against Excessive Remuneration in Stock Listed Corporations (Ordinance), the standard relating to information on Corporate Governance of the SIX Swiss Exchange, the rules of the stock markets of Sweden and the United States where ABB's shares are also listed, and the principles of the Swiss Code of Best Practice for Corporate Governance of economiesuisse.

Authority levels in compensation matters
The CC acts in an advisory capacity while the Board retains the decision authority on compensation matters, except for the maximum aggregate compensation amounts of the Board and of the EC, which are subject to the approval of shareholders at

Exhibit 2: Authority levels in compensation matters

	CEO	CC	Board	AGM
Compensation policy including incentive plans		●	●	
Maximum aggregate compensation amount EC		○	●	●
CEO compensation		●	●	
Individual compensation EC members	○	●	●	
Performance target setting and assessment CEO		●	●	
Performance target setting and assessment EC	○	●	●	
Shareholding requirements CEO and EC		●	●	
Maximum aggregate compensation amount Board		○	●	●
Individual compensation of Board members		●	●	
Compensation report		●	●	Consultative vote

○ Proposal ● Recommendation ● Approval

the AGM. The authority levels of the different bodies on compensation matters are detailed in Exhibit 2.

Activities of the CC in 2016

The CC meets as often as business requires but at least four times a year. In 2016, the CC held six meetings and performed the activities described in Exhibit 3. Details on meeting attendance of the individual CC members are provided in the Corporate governance report on page 44.

The Chairman of the CC reports to the full Board after each CC meeting. The minutes of the meetings are available to the members of the Board. As a general rule, the CEO, the Chief Human Resources Officer (CHRO) and the Head of Compensation and Benefits attend the CC meetings in an advisory capacity. The Chairman of the CC may decide to invite other executives as appropriate. Executives do not attend the meetings or the parts of the meetings in which their own compensation and/or performance are being discussed.

The CC may decide to consult an external advisor for compensation matters. In 2016, Hostettler & Company (HCM) and PricewaterhouseCoopers (PwC) were mandated to provide services related to executive compensation matters. HCM has no other mandate with ABB. Apart from its CC advisory role, PwC also provides human resources, tax and advisory services to ABB. In addition, support and expertise are provided to the CC by internal compensation experts such as the CHRO and the Head of Compensation and Benefits.

Board compensation

Compensation principles

The compensation system for the members of the Board is designed to attract and retain

Exhibit 3: CC activities during 2016

Performance: items relating to past performance cycle
Individual performance assessment of CEO and EC members
Performance assessment for short-term variable compensation
Look-back assessment of ABB's performance over past three years
Payout of long-term variable compensation
Performance: items relating to upcoming performance cycle
Setting of performance targets for short-term variable compensation
Setting of performance targets for long-term variable compensation
Quarterly updates on status of various performance plans
EC compensation review and planning
Review of EC compensation (incentive structure, levels and mix) relative to external benchmarks
Recommendation of individual compensation of EC members
Review of pensions and benefits
Review of shareholding level of each EC member
Board compensation
Comparison of compensation levels against external benchmarks
Recommendation of individual compensation of Board members
Compliance and regulatory
Preparation of Compensation report for publication
Preparation of maximum aggregate compensation amount of EC to be submitted to AGM vote
Preparation of maximum aggregate compensation amount of Board to be submitted to AGM vote

experienced people on the Board. Compensation of Board members takes into account the responsibilities, time and effort required to fulfill their roles on the Board and its committees. From time to time the levels and mix of compensation of Board members are compared against the compensation of non-executive board members of publicly traded companies in Switzerland that are part of the Swiss Market Index.

The compensation of Board members is fixed. They do not receive variable compensation or pension benefits, underscoring their focus on corporate strategy, supervision and governance. In accordance with Swiss law, Board members may not receive golden parachutes or other special benefits in the event of a change of control. Board members are paid for their service over a 12-month period that starts with their election at the AGM. Payment is made in semi-annual installments in arrears.

In order to further align the interests of Board members with those of ABB's shareholders, half of their total compensation has to be paid in ABB shares, although Board members may choose to receive all of their compensation in shares. The number of shares delivered is calculated prior to each semi-annual payment by dividing the monetary amount to which the Board members are entitled by the average closing price of the ABB share over a predefined 30-day period. The shares are subject to a three-year restriction period during which they cannot be sold, transferred or pledged. Any restricted shares are unblocked when the Board member leaves the Board.

Structure of Board compensation
The structure of Board compensation for the term of office from AGM to AGM is described in Exhibit 4.

The compensation amounts paid to the Board members for the calendar year 2016 and for the term of office from the 2016 AGM to the 2017 AGM are disclosed in Exhibits 19 and 20, respectively, in the section "Compensation and share ownership tables".

Exhibit 4: Structure of Board compensation

	Board term fee (CHF)
Chairman of the Board[1]	1,200,000
Vice-chairman of the Board[1]	450,000
Member of the Board	290,000
Additional committee fees:	
Chairman of FACC[2]	110,000
Chairman of GNC and CC[2]	60,000
Member of FACC[2]	40,000
Member of GNC and CC[2]	30,000

Executive Committee compensation

Compensation principles
ABB's compensation system reflects the commitment to attract, motivate and retain people with the talent necessary to strengthen ABB's position as a pioneering technology leader for utility, industry, and transport & infrastructure customers.

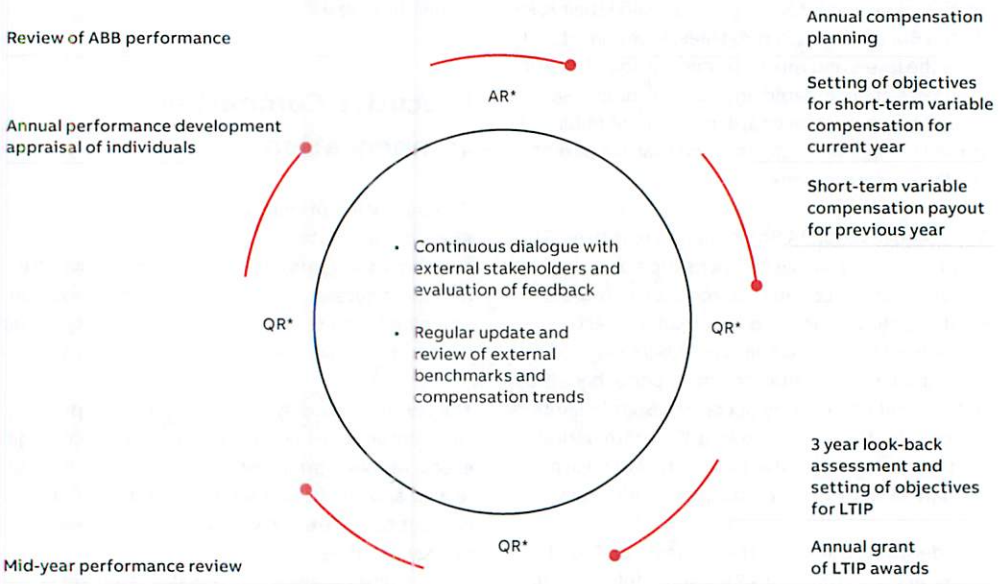
The compensation system is designed to provide competitive compensation and to encourage executives and employees to deliver outstanding results and create sustainable shareholder value without taking excessive risks. The compensation system balances:
- fixed and variable compensation elements;
- short-term and long-term incentives;
- the recognition of Group and individual performance.

The compensation system has been refined in recent years in line with ABB's Next Level Strategy, so that it rewards the achievement of financial and operational objectives and drives the leadership behaviors required for the long-term and sustainable success of ABB. The compensation system is based on the following principles (Exhibit 5).

Exhibit 5: Principles of EC compensation

Strategic alignment	Compensation is directly linked to the Next Level Strategy through ambitious performance objectives and robust performance monitoring.
Performance orientation	Ambitious goals are set in ABB's planning processes and variable pay is aimed at the upper quartile level when these objectives are met.
Comprehensive and balanced KPIs	Performance metrics support the development of earnings per share and cash return on invested capital. They also include measures of operational and behavioral performance that are critical in the current change process of the Next Level Strategy. Performance metrics are well-balanced as they reflect both Group and individual performance, as well as short-term and long-term results.
Competitiveness	Compensation mix and levels are reviewed annually against benchmarks that include relevant peer companies in the markets in which ABB operates. Annual base salaries of EC members are set between the market median and upper quartile in order to attract suitable talent.

Exhibit 6: Annual review of the business and performance cycle



*AR – annual results; QR – quarterly results

To effectively align strategy, performance and compensation, the target setting and review processes are directly linked to the financial and budget processes.

Alignment with ABB's business strategy

The Board defines the strategic direction of the company and regularly reviews the progress made on the strategy. Based on these reviews, the Board sets performance targets and annual budgets, and ensures that the company's compensation programs support the implementation of the strategy by appropriately rewarding performance (see Exhibit 6).

The Board designs the overall EC compensation so that it is aligned with our Next Level Strategy. In addition, short-term targets are aligned with our external targets (including revenues, operational EBITA, cash generation, and earnings growth).

Market competitiveness and benchmarks

All EC and other senior positions at ABB have been evaluated using the job evaluation methodology of the Hay Group, which is used by more than 10,000 companies around the world. This approach provides a meaningful, transparent and consistent basis for evaluating roles and for comparing compensation levels with those of equivalent jobs at other companies.

The General Pan-European Market data of Hay's annual survey Top Executive Compensation in Europe is primarily used to benchmark EC compensation, which is targeted to be above the median values for the market. Other references include Hay's data on the Swiss and European industry markets and on US peers (see Exhibit 7).

Components of EC Compensation

The compensation of EC members consists of an annual base salary, benefits, a short-term variable component based on annual performance objectives and a long-term variable

Exhibit 7: Compensation benchmarks

REFERENCE	COMPOSITION	RATIONALE
Main benchmark		
General Pan-European Market	360 largest European companies of the FT Europe 500 listing	Continuity and stability of data points
References to stress-test main benchmark		
Global Industry Group	Peer companies selected based on business, geographic presence and size	Specific peer group to benchmark compensation design
Swiss market	SMI and SMIM companies that are included in Hay's General Pan-European Market data	Comparison with other multinational Swiss companies
US market	US peers of similar size and industry	Comparison with other multinational US companies

component based on long-term performance (see Exhibit 8).

The Board considers several factors when reviewing and setting the individual target compensation of each EC member:

- Market value of the role (external benchmark);
- Individual profile of the incumbent in terms of experience and skillset;
- Individual performance and potential; and
- Affordability for the company.

The compensation that is effectively paid depends on the performance of the Group and of the individual members of the EC. Exhibit 9 illustrates

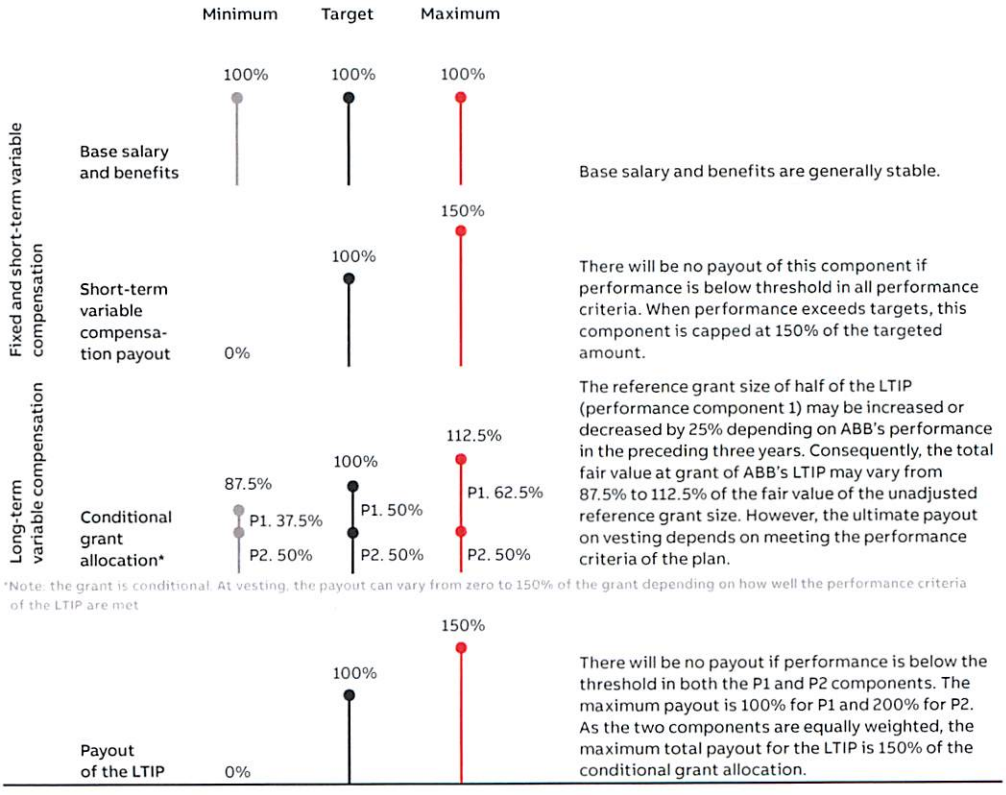
Exhibit 8: Structure of EC compensation

	Fixed compensation	Variable compensation		
	Base salary and benefits	Short-term	Long-term	
Compensation component			Performance component 1 (P1) 50%	Performance component 2 (P2) 50%
Purpose	Compensates EC members for the role. Based on the scope of responsibilities, individual experience and skillset	Rewards annual performance	Encourages creation of long-term, sustainable value for the shareholders	
Performance measures affecting amount / allocation	When considering changes in base salary, the executive's performance during the preceding year against individual objectives is taken into account	n.a.	ABB's performance (preceding three years); Individual performance (preceding year)*	n.a.
Performance measures affecting payout	n.a.	Group and individual objectives in the relevant financial year	Net income threshold in the financial year prior to vesting*	Cumulative EPS target over the 3-year vesting period
Payment	Cash and benefits in kind	Cash	Shares (70%) and cash (30%) Beneficiaries can elect to receive 100% in shares	

*Changes are foreseen for 2017 grants, please refer to section "Outlook: changes to compensation system in 2017"

The main components of EC compensation are directly linked to performance.

Exhibit 9: Compensation components under various scenarios



*Note: the grant is conditional. At vesting, the payout can vary from zero to 150% of the grant depending on how well the performance criteria of the LTIP are met

the relative proportions of the components of EC compensation under the scenarios of minimum performance, target (expected) performance and maximum performance.

Fixed compensation – annual base salary and benefits

The fixed compensation of EC members includes the fixed annual base salary and benefits. Benefits consist mainly of retirement, insurance and healthcare plans that are designed to provide a reasonable level of income for the employees and their dependents in case of retirement, disability or death. Benefits plans vary in line with the local competitive and legal environment and are, at a minimum, in accordance with the legal requirements of the respective country.

EC members are also provided with certain fringe benefits such as a company car according to competitive local market practice. Tax equalization is provided for EC members resident outside Switzerland to the extent that they are not able to claim a tax credit in their country of residence for income taxes they paid in Switzerland. The monetary value of these benefits is disclosed in Exhibits 21 and 22.

Short-term variable compensation

The short-term variable compensation is designed to reward EC members for the Group's results and their individual performance over a time horizon of one year. It allows the EC members to participate in the company's success while being rewarded for their individual contributions.

Group objectives are aligned with the strategic targets of ABB's Next Level Strategy that have been communicated to shareholders and have a weighting of 80 percent for the CEO and 65 percent for the other EC members. For 2016, the Group objectives included revenues, operational EBITA margin, operational net income, operating cash flow, cost savings and Net Promoter Score (NPS).

Individual objectives are set as part of the annual performance management process and support the implementation of the Next Level Strategy in the respective area of responsibility of each EC member. They include metrics that help the management to assess whether the results are achieved in a sustainable way in four different categories: financial performance, operational performance, strategic initiatives and leadership performance. Individual objectives have a weighting of 20 percent for the CEO and 35 percent for other EC members (see Exhibit 10).

For each performance objective, a target is set corresponding to the expected level of performance that will generate a 100 percent payout. In order to strengthen the company's market position and to continuously strive for superior performance, stretch targets are determined in line with the company's ambitious financial plan and with the Next Level Strategy. Further, a minimum level of performance, below which there is no payout (threshold) and a maximum level of performance, above which the payout is capped at 150 percent of target (cap), are also defined. The payout percentages for achievements between the threshold, the target and the cap are determined by linear interpolations.

Fully achieving all the objectives (target performance) results in a payout equivalent to 150 percent of the annual base salary for the CEO and 100 percent of the annual base salary for other EC members.

Long-term variable compensation

The long-term variable compensation for EC members consists of an annual conditional share grant under the Long Term Incentive Plan (LTIP), which is aimed at driving long-term shareholder value creation in a sustainable manner. It rewards the achievement of predefined performance goals over a three-year vesting period.

The LTIP is split in two performance components:

- a P1 component which is tied to ABB's achievement of a threshold net income in the financial year prior to the end of the vesting period, and
- a P2 component which is tied to the achieved weighted cumulative earnings-per-share (EPS) over the vesting period.

Exhibit 10: Short-term variable compensation objectives and weighting in 2016

	Explanation	Weighting	
		CEO	Other EC members[1]
Group objectives	Six financial and non-financial parameters: revenues, operational EBITA margin, operational net income, operating cash flow, cost savings and Net Promoter Score	80%	65%
Individual objectives (tailored to function and area of responsibilities)	Include: – Additional financial objectives – Operational execution metrics – Strategic goals – Leadership objectives	20%	35%

[1] Changes are foreseen for 2017 please refer to [illegible]

The P1 and P2 components are equally weighted in terms of the target fair value at grant.

Determination of grant size

The number of shares conditionally granted under the LTIP is determined as follows:

- A reference value for the LTIP is first established as a multiple of the annual base salary. In 2016, the multiples were 200 percent for the CEO and 107 percent for the other EC members. As the P1 and P2 components are equally weighted, the reference value of these components for the CEO and the other EC members for the 2016 LTIP were as follows:

	P1 component	P2 component	Total
CEO	100%	100%	200%
EC	53.5%	53.5%	107%

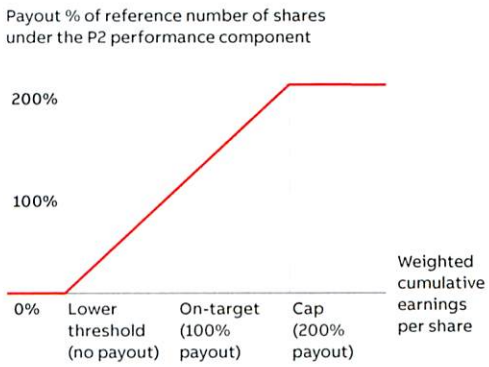
- The reference value for the grant size of the P1 component for the CEO as an individual and the other EC members as a pool may be increased or decreased by the Board by up to 25 percent. The increase or decrease is based on the Board's assessment of ABB's performance over the three financial years preceding the grant, both in absolute terms and relative to a peer group comprising Alstom, Eaton, Emerson, GE, Honeywell, Legrand, Schneider and Siemens. The allocation from the pool to each individual EC member is determined by the Board based on an assessment of the individual's performance.
- The reference value of the P2 component is not subject to any adjustment.
- The number of shares conditionally granted under P1 and P2 to each EC member is determined by dividing the respective grant value by the average closing prices of ABB shares over the 20 trading days following the Board's decision to launch an LTIP grant.

Determination of payout at vesting

To vest at the end of the three-year vesting period, the following performance conditions must be met:

- For the P1 component, ABB has to achieve the threshold net income level set by the Board at the beginning of the vesting period. The component will not vest if this threshold is not achieved and will vest at 100 percent if this threshold is met or exceeded. Therefore there is either no payout or 100 percent payout.
- For the P2 component, the percentage of shares that may vest (the payout percentage) is based on ABB's EPS performance against an EPS objective set by the Board at the beginning of the vesting period. This EPS objective is based on an outside-in view, taking into account the growth expectations, risk profile, investment levels and profitability levels that are typical for the industry. This outside-in approach in setting EPS objectives for the LTIP assumes that investors expect a risk-adjusted return on their investment, which is based on market value (and not book value) and translates such expected returns over a three-year period into EPS targets. The weighted cumulative EPS result is calculated as the addition of the EPS in the first financial year (weighted at 33 percent) plus the EPS in the second financial year (weighted at 67 percent) plus the EPS in the third financial year (weighted at 100 percent). This formula gives more weight to the EPS achieved in the later years of the vesting period. There is no payout if the lower EPS threshold is not reached and the payout is capped at 200 percent if EPS performance exceeds the pre-defined payout cap. The payout formula is shown in Exhibit 11.

Exhibit 11: Payout formula for P2 (EPS performance)



The LTIP rewards participants for increasing EPS over a three-year period. The payout of the P2 component is based on ABB's weighted cumulative EPS performance against predefined objectives.

To further strengthen the alignment of EC members' interests with those of shareholders, both P1 and P2 components are settled in shares (70 percent) and cash (30 percent), although participants can elect to receive 100 percent in shares.

Key contractual provisions

Share ownership requirements

The Board aims to align EC members' interests with those of shareholders. To maintain focus on the long-term success of the company, EC members are required to build up a holding of ABB shares that is equivalent to a multiple of their annual base salary (see Exhibit 12).

Exhibit 12: Share ownership requirements for EC members

Chief Executive Officer	5 x annual base salary
Other EC members	4 x annual base salary

Only shares owned by an EC member and the member's spouse are included in the share ownership calculation. Vested and unvested stock options are not considered for this purpose.

The CC reviews the status of EC share ownership on an annual basis. It also reviews the required shareholding amounts annually, based on salary and expected share price developments. As the level of the shareholding requirement is high relative to market practice, the Board has determined that members of the EC should generally aim to reach these multiples within five years of their appointment.

Notice period, severance provisions and non-competition clauses

Employment contracts for EC members include a notice period of 12 months, during which they are entitled to their base salary, benefits and short-term variable compensation. In accordance with Swiss law and ABB's Articles of Incorporation, the contracts for EC members do not allow for any severance payment.

Non-compete agreements have been agreed with EC members for a period of 12 months after their employment. Compensation for such agreements, if any, may not exceed the EC member's last total annual compensation.

Malus and clawback

Any long-term incentive compensation awarded to members of the EC is subject to malus and clawback rules if a plan participant has been involved in any illegal activity. This means that the Board of Directors may decide not to pay any unpaid or unvested incentive compensation (malus), or may seek to recover incentive compensation that has been paid in the past (clawback).

Compensation awarded to Board and EC in 2016

Compensation of the Board in 2016

Board members received a total compensation of CHF 4.2 million in 2016 compared with CHF 3.68 million in 2015, as presented in Exhibit 19 on page 75. The change in compensation is primarily due to the increase in the number of Board members from 8 to 11.

At the 2015 AGM, the shareholders approved a maximum aggregate compensation amount of CHF 4.5 million for the Board for the term of office 2015-2016. The compensation paid for that period amounts to CHF 3.73 million as presented in Exhibit 20 on page 76 and is therefore within the approved amount.

At the 2016 AGM, the shareholders approved a maximum aggregate compensation amount of CHF 4.7 million for the Board for the term of office 2016–2017. The compensation for that period amounts to CHF 4.67 million as presented in Exhibit 20 on page 76 and is therefore within the approved amount.

Compensation of the EC in 2016

As described on page 65, the compensation of the EC is aligned with the strategic targets of ABB's Next Level strategy set as performance objectives.

The ratio of fixed to variable compensation components in any given year depends on the performance of the company and of the individuals against these predefined performance objectives. In 2016, as shown in Exhibit 13, the variable compensation represented 67 percent of the CEO's compensation (previous year: 69 percent) and an average of 53 percent for the other EC members (previous year: 55 percent). This again illustrates the significant emphasis placed on performance-related compensation.

EC members received total compensation of CHF 44.2 million in 2016 compared with CHF 45.5 million in 2015, as presented in Exhibit 14. The lower total compensation in 2016 is principally due to a reduction in the number of EC members from 12 to 11, partially offset by an increase in costs due to pension arrangements and an overlap period between Pekka Tiitinen and Sami Atiya.

Pension benefits increased as a result of adjustments that were decided in 2015 based on the benchmarking analysis conducted by Towers Watson. This review highlighted that the retirement benefits of EC members were below the median of 50 peer companies (part of Hay Group General Pan-European Market). As a result, the pension benefits of certain EC members were increased during 2016.

Exhibit 13: Ratios of fixed and variable compensation components of EC members in 2016

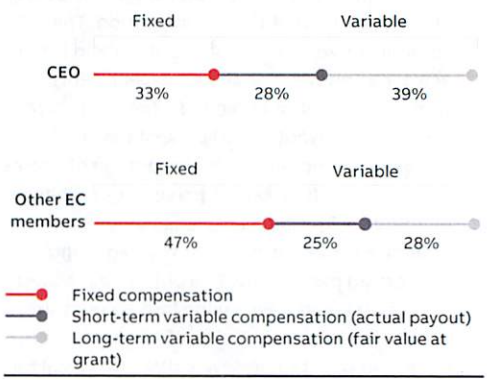


Exhibit 14: Total compensation of EC members (in CHF million)

	2016	2015
Base salaries	10.2	10.5
Pension benefits	4.1	3.5
Other benefits	5.2	5.3
Total fixed compensation	**19.5**	**19.3**
Short-term variable compensation	11.4	11.8
Long-term variable compensation	13.3	14.4
Total variable compensation	**24.7**	**26.2**
Total compensation	**44.2**	**45.5**

For an overview of compensation by individual and component, please refer to Exhibit 21 on page 76 and Exhibit 22 on page 77.

At the 2015 AGM, the shareholders approved a maximum aggregate compensation amount of CHF 52 million for the EC for the year 2016. The EC compensation for 2016 amounts to CHF 44.2 million and is therefore within the approved amount.

Short-term variable compensation

2016 has been a strong year for ABB as highlighted in Exhibit 15. The company exceeded the Group-wide objectives for cost savings and customer satisfaction (as measured by the use of the Net Promoter Score). On the other objectives (revenues, operational EBITA margin, operational net income and operating cash flow), the Group's performance, while not achieving the set targets, was considerably above threshold. This resulted in an overall achievement of 101.8 percent for the Group component of the short-term variable compensation (previous year: 101.3 percent).

For 2016, there is an 11 percentage point difference between the highest and lowest payout of the short-term variable compensation of the EC members (previous year: 16 percentage points). This reflects the performance of each EC member against their individual objectives.

Long-term variable compensation

In 2016, the estimated value of the share-based grants to EC members under the LTIP was CHF 13.3 million compared with CHF 14.4 million in 2015. This difference was mainly due to the decrease in the number of EC members from 12 to 11.

To determine the size of the P1 component granted in 2016, the Board assessed ABB's 2013–2015 performance based on: revenue growth, cash return on invested capital, operational EBITDA margin, share price development, share price to earnings ratio, NPS development, integrity and safety performance. This resulted in an aggregate increase of 3 percent in the reference grant size of the P1 component for

Exhibit 15: Group-wide 2016 objectives, weighting and performance for short-term variable compensation

Objective[1]	Weighting	Performance
Revenues	20%	●
Operational EBITA margin[2]	15%	●
Operational net income[3]	10%	●
Operating cash flow[4]	30%	●
Cost savings	15%	○
Net Promoter Score[5]	10%	○

○ On or above target
● Above threshold and below target
● Below threshold

(1) The financial objectives exclude the impact of currency fluctuation, major acquisitions and divestments, and impact of discontinued operations where appropriate.
(2) Operational EBITA margin is Operational EBITA (as defined in Note 23 to the Consolidated Financial Statements) as a percentage of Operational revenues, which is total revenues adjusted for foreign exchange/commodity timing differences in total revenues.
(3) Operational net income is calculated as Net income attributable to ABB adjusted for the after-tax effect of acquisition-related amortization, restructuring and restructuring-related expenses, non-operational pension cost, changes in pre-acquisition estimates, gains and losses from sale of businesses, acquisition-related expenses and certain non-operational items, foreign exchange/commodity timing differences in income from operations.
(4) Operating cash flow is defined as the net cash provided by operating activities, reversing the cash impact of interest, taxes, restructuring-related activities and one-time pension contributions.
(5) Net Promoter Score (NPS) is a metric based on dividing customers into three categories, Promoters, Passives and Detractors. This is achieved by asking customers in a one-question survey whether they would recommend ABB to a colleague. In 2016, ABB had a target for countries and business to improve their NPS compared to the previous year.

EC members as a pool. This compares to the 6 percent increase in 2015 versus 2014.

The payout for the performance component of the 2013 LTIP that vested in 2016 was 43 percent (previous year: 51 percent for the 2012 LTIP). The payout was based on the EPS achieved during the plan's three-year vesting period.

Other compensation

Members of the EC are eligible to participate in the Employee Share Acquisition Plan (ESAP), a savings plan based on stock options, which is open to employees around the world. Seven members of the EC participated in the 13th annual launch of the plan in 2016. EC members who participated will, upon vesting, each be entitled to acquire up to 500 ABB shares at CHF 20.12 per share, the market share price at the start of that launch.

For a more detailed description of ESAP, please refer to "Note 18 Share-based payment arrangements" to ABB's Consolidated Financial Statements contained in the Financial review of ABB Group section of this Annual Report.

In 2016, ABB did not pay any fees or compensation to the members of the Board or the EC for services rendered to ABB other than those disclosed in this report. Except as disclosed in the sections "Business relationships between ABB and its Board

members" and "Business relations between ABB and its EC members" of the Corporate governance report, ABB did not pay any additional fees or compensation in 2016 to persons closely linked to a member of the Board or a member of the EC for services rendered to ABB.

Compensation of former Board and EC members
In 2016, no payment was made to any former Board member. One former EC member received contractual compensation for the period after leaving the EC, as shown in Exhibit 21 on page 76.

Shareholdings of Board and EC members as of December 31, 2016

The members of the Board and EC owned less than 1 percent of ABB's total shares outstanding as of December 31, 2016.

Exhibit 25 on page 79 shows the number of ABB shares held by each Board member as of December 31, 2016 and 2015. Except as described in this exhibit, no member of the Board and no person closely linked to a member of the Board held any shares of ABB or options in ABB shares.

As of December 31, 2016, members of the EC held ABB shares, conditional rights to receive shares under the LTIP, options (either vested or unvested as indicated) under the Management Incentive Plan (MIP), and unvested shares in respect of other compensation arrangements, as shown in Exhibit 26 on page 80. Their holdings as of December 31, 2015, are shown in Exhibit 27 on page 81.

Members of the EC cannot participate in the MIP. Any MIP instruments held by EC members were awarded to them as part of the compensation they received in earlier roles they held at ABB. For a more detailed description of MIP, please refer to "Note 18 Share-based payment arrangements" to ABB's Consolidated Financial Statements contained in the Financial review of ABB Group section of this Annual Report.

Furthermore, as of December 31, 2016, members of the EC held conditionally granted ABB shares under the performance component of the LTIP 2014, which at the time of vesting will be settled in cash, as shown in Exhibit 28 on page 81. Their equivalent holdings as of December 31, 2015, are shown in Exhibit 29 on page 82.

Except as described in Exhibits 26–29, no member of the EC and no person closely linked to a member of the EC held any shares of ABB or options on ABB shares as of December 31, 2016 and 2015.

Outlook: changes to compensation system for 2017

In reviewing the EC compensation system and taking into account the feedback received by shareholders and other stakeholders, the Board decided to make a number of changes that will be implemented for 2017.

The successful implementation of Stage 3 of the Next Level Strategy will depend to a large extent on the leadership capabilities of our executives. Driving the culture of ownership and entrepreneurship throughout the organization is critical, and to support this goal the Board has decided to strengthen the link between individual performance and variable compensation. A stronger emphasis will be put on the individual performance in the short-term variable compensation as of 2017, while the LTIP will continue to depend fully on Group performance. The combination of Group objectives in the LTIP and of individual and Group objectives in the short-term variable compensation provides a balance designed to generate and reward optimal performance of both the Group and the individual EC members.

Short-term variable compensation
The short-term variable compensation will reward Group performance (between 35 and 50 percent weight) and individual performance (between 50 and 65 percent weight) as described in Exhibit 16. The individual performance includes regional objectives for the Region Presidents, divisional objectives for the Division Presidents and functional objectives for the Corporate Officers, i.e. the CFO, CHRO and General Counsel.

Exhibit 16: Weight of Group and individual objectives for EC members

	CEO (no change)	Division and region presidents	Corporate Officers (CFO, CHRO, General Counsel)
Group objectives	80%	35%	50%
Individual objectives	20%	65% (divisional/ regional and personal objectives)	50% (functional and personal objectives)

The other parameters of the short-term variable compensation, such as the target setting and the maximum payout factor, remain unchanged.

Long-term variable compensation
The LTIP will continue to be built around two performance components. While P2 (cumulated EPS) remains unchanged, P1 will be modified as follows:

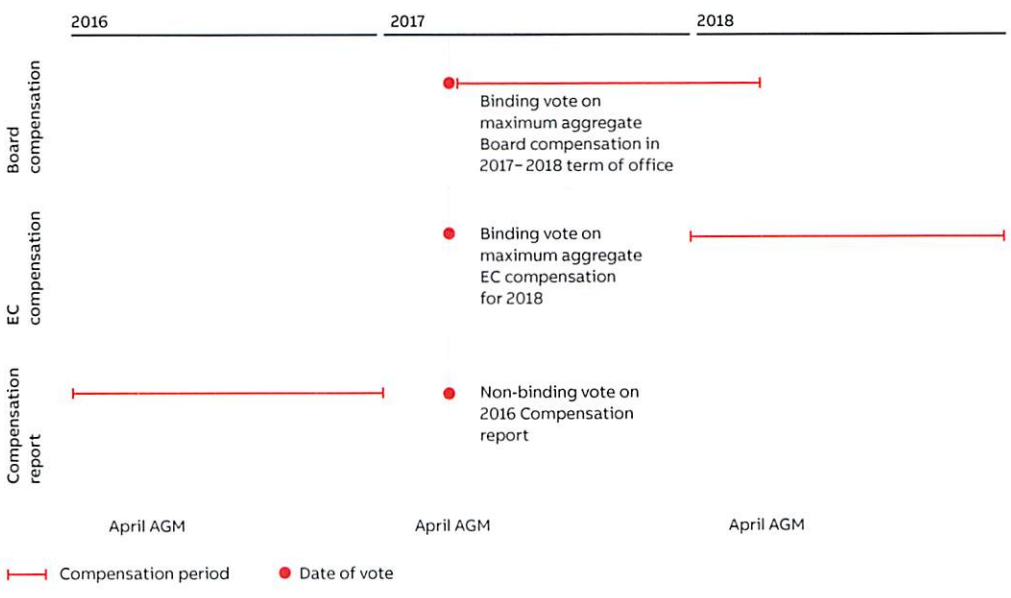
- The net income threshold will be replaced by a payout curve in order to remove the binary character of the payout. A net income target will be determined, corresponding to a 100 percent payout, as well as a threshold amount below which there is no payout, and an amount above which the payout is capped at 150 percent. Achievement levels between the threshold, the target and the cap will be calculated by linear interpolations. Net income performance will be measured as an average of each year's performance over the three-year vesting period.
- To further reinforce the forward looking performance nature of the above modification, the Board will no longer conduct an assessment of ABB's past performance (over the three financial years preceding the grant) in order to determine an adjustment to the grant size pool. The Board, however, based on the recommendations of the CEO for the EC members and its own assessment of the CEO, may still vary the grant size of individual EC members to reflect their individual performance and contributions to the company.

In summary, half of the fair value at grant of the LTIP will be based on the achievement of the cumulative EPS target over the three-year vesting period and half on the achievement of the net income target measured over the three-year vesting period.

Votes on compensation at the 2017 AGM

As illustrated in Exhibit 17, the Board's proposals to shareholders at the 2017 AGM will relate to maximum aggregate Board compensation for the 2017-2018 term of office and maximum aggregate EC compensation for the calendar year 2018. There will also be a non-binding vote on the 2016 Compensation report.

Exhibit 17: Shareholders will have three separate votes on compensation at the 2017 AGM



At the 2017 AGM there will be separate binding votes on maximum aggregate Board and EC compensation, and a non-binding vote on the 2016 Compensation report.

Exhibit 18: Overview of key factors affecting the determination of maximum aggregate EC compensation

	2016			2017	2018[1]
Aggregate EC compensation in CHF (millions)	44	43	52	50	xx
Assumptions	Actual	Target	Maximum (approved at 2015 AGM)	Maximum (approved at 2016 AGM)	Maximum (to be requested at 2017 AGM)
Short-term variable compensation payout percentage[2]		100%	150%	150%	150%
Adjustment of LTIP performance component 1 (P1)[2]		0%	+25%	+25%	+25%
Number of EC members		11	12	11	11

(1) Numbers will be provided in the AGM invitation.
(2) For full description, see section "Executive Committee compensation" and section "Outlook: changes to compensation system for 2017".

The Board's proposal for maximum aggregate EC compensation for 2018 will incorporate assumptions for a normal increase.

In determining the proposed maximum aggregate EC compensation, the Board takes into consideration the criteria mentioned in Exhibit 18. Given the variable nature of some of the compensation components, the proposed maximum aggregate EC compensation will almost always be higher than the actual payout, as it must cover the potential maximum value of each component of compensation.

Compensation and share ownership tables

Exhibit 19: Board compensation in 2016 and 2015 (audited)

	Paid in 2016					Paid in 2015				
	November Board term 2016–2017		May Board term 2015–2016			November Board term 2015–2016		May Board term 2014–2015		
Name	Settled in cash[1]	Settled in shares – number of shares received[2]	Settled in cash[1]	Settled in shares – number of shares received[2]	Total compensation paid in 2016[3]	Settled in cash[1]	Settled in shares – number of shares received[2]	Settled in cash[1]	Settled in shares – number of shares received[2]	Total compensation paid in 2015[3]
	CHF		CHF		CHF	CHF		CHF		CHF
Peter Voser, Chairman 2015–2017[4]	—	25,960	—	30,618	1,200,000	—	32,559	—	—	600,000
Hubertus von Grünberg, Chairman 2014–2015[5]	—	—	—	—	—	—	—	—	18,686	600,000
Jacob Wallenberg[6]	112,500	3,915	112,500	4,616	450,000	112,500	4,911	82,500	3,040	390,000
Roger Agnelli[7]	—	—	80,834	2,804	161,667	82,500	3,333	82,500	2,816	330,000
Matti Alahuhta[8]	80,000	2,784	90,000	3,693	340,000	90,000	3,929	80,000	2,947	340,000
David Constable[9]	80,000	2,784	80,000	3,282	320,000	80,000	3,229	—	—	160,000
Frederico Curado[10]	80,000	2,573	—	—	160,000	—	—	—	—	—
Robyn Denholm[11]	82,500	2,871	—	—	165,000	—	—	—	—	—
Louis R. Hughes[12]	100,000	3,480	100,000	4,103	400,000	100,000	4,365	100,000	3,455	400,000
David Meline[13]	82,500	2,871	—	—	165,000	—	—	—	—	—
Satish Pai[14]	82,500	2,871	—	—	165,000	—	—	—	—	—
Michel de Rosen[15]	87,500	3,045	87,500	3,590	350,000	87,500	3,820	87,500	3,224	350,000
Michael Treschow[16]	—	—	—	—	—	—	—	95,000	3,336	190,000
Ying Yeh[17]	80,000	2,616	81,666	3,145	323,333	80,000	3,281	80,000	2,765	320,000
Total	**867,500**	**55,770**	**632,500**	**55,851**	**4,200,000**	**632,500**	**59,427**	**607,500**	**40,269**	**3,680,000**

Exhibit 20: Board compensation in the Board terms 2016–2017 and 2015–2016

Name	Specific Board Roles	Board term 2016–2017	Board term 2015–2016
		CHF	CHF
Peter Voser	Chairman of the Board and Chairman of GNC	1,200,000	1,200,000
Jacob Wallenberg	Vice-Chairman of the Board and GNC member	450,000	450,000
Roger Agnelli[1]	FACC member 2015–2016	—	330,000
Matti Alahuhta	GNC member 2016–2017; GNC and FACC member 2015–2016	320,000	360,000
David Constable	CC member	320,000	320,000
Frederico Curado[2]	CC member 2016–2017	320,000	—
Robyn Denholm[2]	FACC member 2016–2017	330,000	—
Louis R. Hughes	Chairman of FACC	400,000	400,000
David Meline[2]	FACC member 2016–2017	330,000	—
Satish Pai[2]	FACC member 2016–2017	330,000	—
Michel de Rosen	Chairman of CC	350,000	350,000
Ying Yeh[1]	CC member	320,000	320,000
Total		**4,670,000**	**3,730,000**

(1) Final compensation [illegible] Board term [illegible] Ying Yeh attended the final FACC meeting in place of Roger Agnelli.
(2) Joined the Board at the 2016 ABB Ltd AGM.
Key:
CC Compensation Committee
FACC Finance, Audit & Compliance Committee
GNC Governance & Nomination Committee

Exhibit 21: EC compensation in 2016 (audited)

Name	Base salary	Short-term variable compensation[1]	Pension benefits	Other benefits[2]	2016 Total cash-based compensation[3]	Estimated value of share-based grants under the LTIP in 2016[4]	2016 Total (incl. conditional share-based grants)[5]
	CHF	CHF	CHF	CHF	CHF	CHF	CHF
Ulrich Spiesshofer[6]	1,641,669	2,583,900	613,799	791,109	5,630,477	3,654,137	9,284,614
Eric Elzvik	850,007	827,050	274,835	332,831	2,284,723	843,920	3,128,643
Jean-Christophe Deslarzes[7]	911,677	971,520	261,986	572,775	2,717,958	1,169,063	3,887,021
Diane de Saint Victor[8]	1,000,001	1,062,000	295,325	300,410	2,657,736	992,853	3,650,589
Frank Duggan[9]	686,042	715,540	342,359	613,772	2,357,713	997,526	3,355,239
Greg Scheu[10]	837,507	791,840	248,397	128,055	2,005,799	896,680	2,902,479
Sami Atiya (EC member as of June 14, 2016)[6]	387,122	373,858	213,242	292,415	1,266,637	745,453	2,012,090
Tarak Mehta[6]	852,672	876,340	461,050	550,482	2,740,544	948,223	3,688,767
Bernhard Jucker[6]	1,015,008	1,099,560	549,075	511,451	3,175,094	1,124,633	4,299,727
Claudio Facchin[6]	770,837	771,540	442,172	507,909	2,492,458	991,170	3,483,628
Peter Terwiesch	729,175	748,965	243,558	179,954	1,901,652	933,992	2,835,644
Pekka Tiitinen (EC member until September 30, 2016)	543,759	543,750	179,184	405,585	1,672,278	—	1,672,278
Total Executive Committee members	**10,225,476**	**11,365,863**	**4,124,982**	**5,186,748**	**30,903,069**	**13,297,650**	**44,200,719**

(1) Represents accrued short-term variable compensation for the year 2016 for all EC members, which will be paid in 2017 after the publication of ABB's financial results. [illegible]
(2) [illegible]
(3) [illegible]
(4) [illegible]
(5) [illegible]
(6) [illegible]
(7) [illegible]
(8) [illegible]
(9) Frank Duggan [illegible] EUR [illegible]
(10) Greg Scheu [illegible] USD [illegible] CHF [illegible] per USD. [illegible]

Exhibit 22: EC compensation in 2015 (audited)

Name	Base salary	Short-term variable compensation[1]	Pension benefits	Other benefits[2]	2015 Total cash-based compensation[3]	Estimated value of share-based grants under the LTIP in 2015[4]	2015 Total (incl. conditional share-based grants)[5]
	CHF	CHF	CHF	CHF	CHF	CHF	CHF
Ulrich Spiesshofer[6]	1,600,004	2,544,000	408,448	780,735	5,333,187	3,765,554	9,098,741
Eric Elzvik	850,007	856,800	270,335	349,021	2,326,163	974,264	3,300,427
Jean-Christophe Deslarzes	866,669	995,280	257,319	377,786	2,497,054	1,122,174	3,619,228
Diane de Saint Victor	1,000,001	1,002,000	293,177	674,074	2,969,252	1,005,044	3,974,296
Frank Duggan[7]	664,632	708,890	336,122	591,990	2,301,634	1,012,539	3,314,173
Greg Scheu[8]	808,012	823,352	360,922	598,259	2,590,545	1,001,756	3,592,301
Pekka Tiitinen	720,844	720,650	234,266	218,550	1,894,310	935,163	2,829,473
Tarak Mehta	813,345	831,504	242,003	446,628	2,333,480	935,304	3,268,784
Veli-Matti Reinikkala	782,507	787,355	281,522	338,704	2,190,088	788,953	2,979,041
Bernhard Jucker	986,505	1,056,330	295,325	392,338	2,730,498	1,134,740	3,865,238
Claudio Facchin	720,844	783,725	243,266	336,543	2,084,378	935,163	3,019,541
Peter Terwiesch	700,001	692,300	238,037	227,994	1,858,332	802,333	2,660,665
Total Executive Comittee members	**10,513,371**	**11,802,186**	**3,460,742**	**5,332,622**	**31,108,921**	**14,412,987**	**45,521,908**

Exhibit 23: LTIP grants in 2016 (audited)

Name	Reference number of shares under the performance component P1 of the 2016 launch of the LTIP[1]	Total estimated value of share-based grants under the performance component P1 of the 2016 launch of the LTIP[1],[2],[4]	Reference number of shares under the performance component P2 of the 2016 launch of the LTIP[1]	Total estimated value of share-based grants under the performance component P2 of the 2016 launch of the LTIP[1],[3],[4]	Total number of shares granted under the 2016 launch of the LTIP[1]	Total estimated value of share-based grants under the LTIP in 2016[2],[3],[4]
		CHF		CHF		CHF
Ulrich Spiesshofer[5]	94,076	1,945,492	81,805	1,708,645	175,881	3,654,137
Eric Elzvik	18,037	373,006	22,546	470,914	40,583	843,920
Jean-Christophe Deslarzes[5]	31,884	659,362	24,403	509,701	56,287	1,169,063
Diane de Saint Victor[5]	21,220	438,830	26,525	554,023	47,745	992,853
Frank Duggan[5]	27,206	562,621	20,822	434,905	48,028	997,526
Greg Scheu	21,572	446,109	21,572	450,571	43,144	896,680
Sami Atiya (EC member as of June 14, 2016)	19,125	376,380	18,568	369,073	37,693	745,453
Tarak Mehta[5]	22,812	471,753	22,812	476,470	45,624	948,223
Bernhard Jucker[5]	27,056	559,519	27,056	565,114	54,112	1,124,633
Claudio Facchin	27,032	559,022	20,690	432,148	47,722	991,170
Peter Terwiesch[5]	25,473	526,782	19,496	407,210	44,969	933,992
Total Executive Committee members as of December 31, 2016	**335,493**	**6,918,876**	**306,295**	**6,378,774**	**641,788**	**13,297,650**

(1) Vesting date June [illegible]

(2) [illegible]

(3) [illegible]

(4) [illegible]

(5) [illegible]

Exhibit 24: LTIP grants in 2015 (audited)

Name	Reference number of shares under the performance component P1 of the 2015 launch of the LTIP[1]	Total estimated value of share-based grants under the performance component P1 of the 2015 launch of the LTIP[1], [2], [4]	Reference number of shares under the performance component P2 of the 2015 launch of the LTIP[1]	Total estimated value of share-based grants under the performance component P2 of the 2015 launch of the LTIP[1], [3], [4]	Total number of shares granted under the 2015 launch of the LTIP[1], [4]	Total estimated value of share-based grants under the LTIP in 2015[2], [3]
		CHF		CHF		CHF
Ulrich Spiesshofer[5]	94,072	2,026,311	78,393	1,739,243	172,465	3,765,554
Eric Elzvik[5]	22,281	479,933	22,281	494,331	44,562	974,264
Jean-Christophe Deslarzes[5]	28,608	616,217	22,805	505,957	51,413	1,122,174
Diane de Saint Victor[5]	19,660	423,477	26,213	581,567	45,873	1,005,044
Frank Duggan	25,813	556,013	20,577	456,526	46,390	1,012,539
Greg Scheu	25,538	550,089	20,358	451,667	45,896	1,001,756
Pekka Tiitinen[5]	23,840	513,514	19,005	421,649	42,845	935,163
Tarak Mehta[5]	21,390	460,741	21,390	474,563	42,780	935,304
Veli-Matti Reinikkala	15,433	332,427	20,577	456,526	36,010	788,953
Bernhard Jucker[5]	25,951	558,985	25,951	575,755	51,902	1,134,740
Claudio Facchin	23,840	513,514	19,005	421,649	42,845	935,163
Peter Terwiesch	18,349	395,238	18,349	407,095	36,698	802,333
Total Executive Committee members as of December 31, 2015	**344,775**	**7,426,459**	**314,904**	**6,986,528**	**659,679**	**14,412,987**

Exhibit 25: Board ownership of ABB shares (audited)

Total number of shares held		
Name	December 31, 2016	December 31, 2015
Peter Voser[1]	102,137	45,559
Jacob Wallenberg[2]	202,190	193,659
Roger Agnelli	—	176,820
Matti Alahuhta	31,265	24,788
David Constable	9,295	3,229
Frederico Curado[3]	2,573	—
Robyn Denholm[3]	2,871	—
Louis R. Hughes	53,145	80,562
David Meline[3], [4]	6,021	—
Satish Pai[3]	2,871	—
Michel de Rosen	79,443	146,646
Ying Yeh	30,518	25,016
Total	**522,329**	**696,279**

Exhibit 26: EC ownership of ABB shares and options as of December 31, 2016 (audited)

		Vested at December 31, 2016	Unvested at December 31, 2016			
Name	Total number of shares held at December 31, 2016	Number of vested options held under the MIP[1]	Retention shares deliverable under the 2014 retention component of the LTIP[2] (vesting 2017)	Reference number of shares deliverable under the 2015 performance components (P1 and P2) of the LTIP[2] (vesting 2018)	Reference number of shares deliverable under the 2016 performance components (P1 and P2) of the LTIP[2] (vesting 2019)	Replacement share grant for foregone benefits from former employer[3] (vesting 2018)
Ulrich Spiesshofer	344,454	—	93,846	172,465	175,881	—
Eric Elzvik	71,369	408,875	30,549	44,562	40,583	—
Jean-Christophe Deslarzes	74,767	—	30,549	51,413	56,287	65,819
Diane de Saint Victor	507,824	—	35,940	45,873	47,745	—
Frank Duggan	158,528	—	27,548	46,390	48,028	—
Greg Scheu	101,250	221,375	26,159	45,896	43,144	—
Sami Atiya (EC member as of June 14, 2016)	—	—	—	—	37,693	—
Tarak Mehta	134,449	—	34,677	42,780	45,624	—
Bernhard Jucker	293,771	—	40,750	51,902	54,112	—
Claudio Facchin	63,795	—	31,083	42,845	47,722	—
Peter Terwiesch	46,312	—	16,457	36,698	44,969	—
Total Executive Committee members as of December 31, 2016	1,796,519	630,250	367,558	580,824	641,788	65,819

Exhibit 27: EC ownership of ABB shares and options as of December 31, 2015 (audited)

		Vested at December 31, 2015	Unvested at December 31, 2015			
Name	Total number of shares held at December 31, 2015	Number of vested options held under the MIP[1]	Retention shares deliverable under the 2013 retention component of the LTIP[2] (vesting 2016)	Retention shares deliverable under the 2014 retention component of the LTIP[2] (vesting 2017)	Reference number of shares deliverable under the 2015 performance components (P1 and P2) of the LTIP[2] (vesting 2018)	Replacement share grant for foregone benefits from former employer[3] (vesting 2016 and 2018)
Ulrich Spiesshofer	289,048	—	78,395	93,846	172,465	—
Eric Elzvik	23,768	710,125	27,071	30,549	44,562	—
Jean-Christophe Deslarzes	—	—	27,071	30,549	51,413	144,802
Diane de Saint Victor	475,446	—	31,848	35,940	45,873	—
Frank Duggan	132,896	—	25,632	27,548	46,390	—
Greg Scheu	83,901	221,375	24,830	26,159	45,896	—
Pekka Tiitinen	21,000	221,375	22,294	25,158	42,845	—
Tarak Mehta	115,977	—	25,632	34,677	42,780	—
Veli-Matti Reinikkala	202,175	—	9,810	27,674	36,010	—
Bernhard Jucker	267,848	—	37,033	40,750	51,902	—
Claudio Facchin	41,501	—	22,294	31,083	42,845	—
Peter Terwiesch	30,393	250,000	15,919	16,457	36,698	—
Total Executive Committee members as of December 31, 2015	1,683,953	1,402,875	347,829	420,390	659,679	144,802

Exhibit 28: EC ownership of WARs and conditionally granted ABB shares (all cash-settled) as of December 31, 2016 (audited)

	Vested at December 31, 2016	Unvested at December 31, 2016
Name	Number of fully vested WARs held under the MIP	Reference number of shares under the performance component of the 2014 launch of the LTIP (vesting 2017)
Ulrich Spiesshofer	—	51,489
Eric Elzvik	—	17,147
Jean-Christophe Deslarzes	—	17,147
Diane de Saint Victor	—	20,173
Frank Duggan	—	15,463
Greg Scheu	—	14,684
Sami Atiya (EC member as of June 14, 2016)	—	—
Tarak Mehta	—	16,139
Bernhard Jucker	—	19,548
Claudio Facchin	—	14,122
Peter Terwiesch	—	10,292
Total Executive Committee members as of December 31, 2016	—	196,204

Exhibit 29: EC ownership of WARs and conditionally granted ABB shares (all cash-settled) as of December 31, 2015 (audited)

	Vested at December 31, 2015	Unvested at December 31, 2015	
Name	Number of fully vested WARs held under the MIP	Reference number of shares under the performance component of the 2013 launch of the LTIP (vesting 2016)	Reference number of shares under the performance component of the 2014 launch of the LTIP (vesting 2017)
Ulrich Spiesshofer	—	50,024	51,489
Eric Elzvik	—	16,659	17,147
Jeane-Christophe Deslarzes	—	16,659	17,147
Diane de Saint Victor	—	19,599	20,173
Frank Duggan	—	15,023	15,463
Greg Scheu	—	14,553	14,684
Pekka Tiitinen	—	13,720	14,122
Tarak Mehta	—	15,023	16,139
Veli-Matti Reinikkalla	—	15,091	15,534
Bernhard Jucker	—	18,992	19,548
Claudio Facchin	287,500	13,720	14,122
Peter Terwiesch	—	10,007	10,292
Total Executive Committee members as of December 31, 2015	**287,500**	**219,070**	**225,860**

Report of the statutory auditor on the Compensation report

To the General Meeting of ABB Ltd, Zurich

We have audited the accompanying Compensation report of ABB Ltd for the year ended December 31, 2016. The audit was limited to the information according to articles 14–16 of the Ordinance against Excessive Compensation in Stock Exchange Listed Companies (Ordinance) contained in the tables labeled "audited" on pages 75 to 82 of the Compensation report.

Board of Directors' responsibility
The Board of Directors is responsible for the preparation and overall fair presentation of the Compensation report in accordance with Swiss law and the Ordinance. The Board of Directors is also responsible for designing the compensation system and defining individual compensation packages.

Auditor's responsibility
Our responsibility is to express an opinion on the accompanying Compensation report. We conducted our audit in accordance with Swiss Auditing Standards. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the Compensation report complies with Swiss law and articles 14–16 of the Ordinance.

An audit involves performing procedures to obtain audit evidence on the disclosures made in the Compensation report with regard to compensation, loans and credits in accordance with articles 14–16 of the Ordinance. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatements in the Compensation report, whether due to fraud or error. This audit also includes evaluating the reasonableness of the methods applied to value components of compensation, as well as assessing the overall presentation of the Compensation report.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

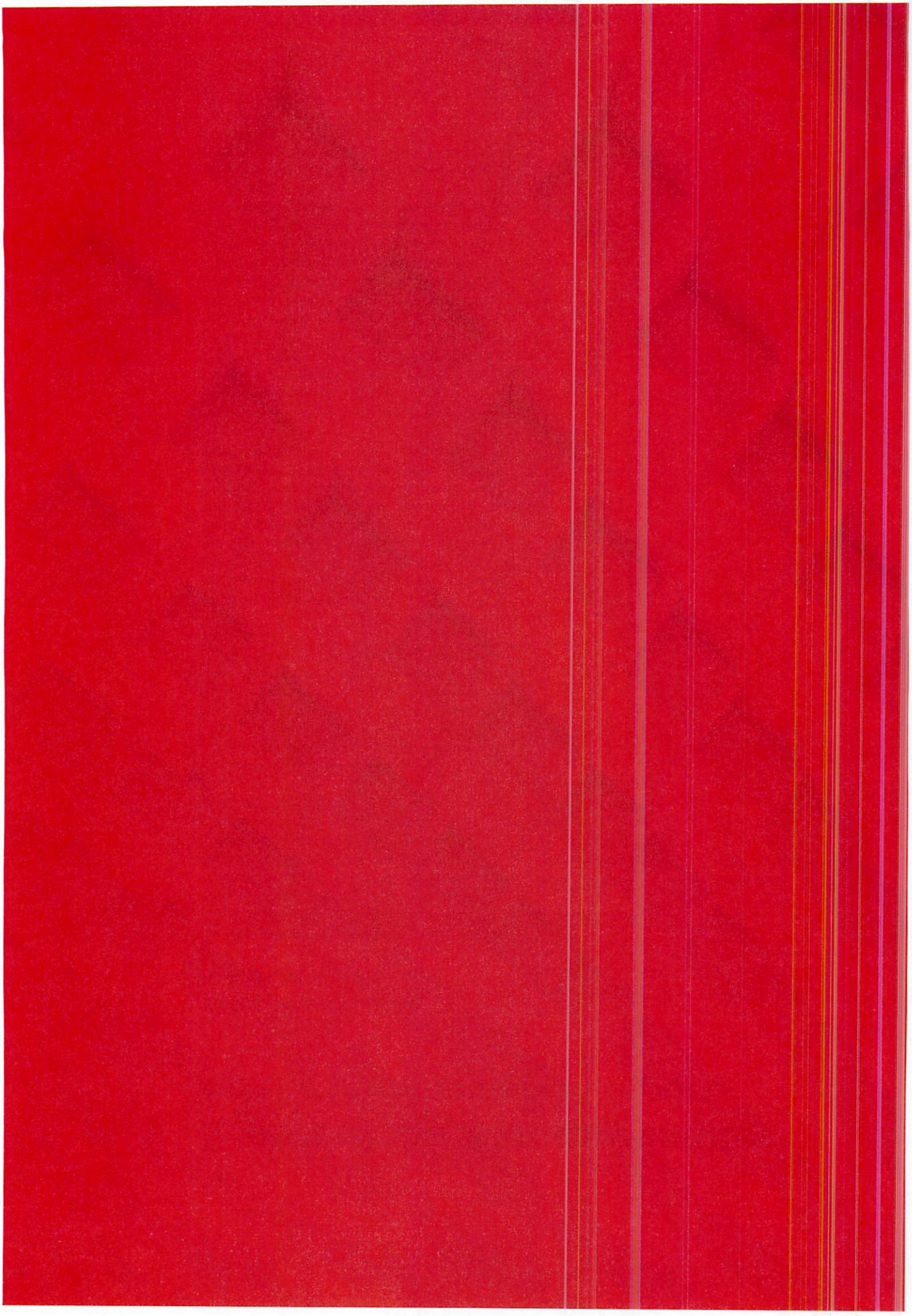
Opinion
In our opinion, the Compensation report for the year ended December 31, 2016 of ABB Ltd complies with Swiss law and articles 14–16 of the Ordinance.

Ernst & Young AG

Leslie Clifford
Licensed audit expert
(Auditor in charge)

Robin Errico
Licensed audit expert

Zurich, Switzerland
March 10, 2017



04
Financial Review of ABB Group

HANSON, MARKETING & SALES, SHANGHAI, CHINA

We have to look ahead and do things differently. Because one thing is clear: Moving our product sales into the digital world is a radical step in our sector.

2016 Operating and financial review and prospects

About ABB

ABB is a pioneering technology leader in electrification products, robotics and motion, industrial automation and power grids serving customers in utilities, industry and transport & infrastructure globally. For more than four decades, ABB has been part of the industrial digitalization. With more than 70 million devices connected through its installed base of more than 70,000 control systems across all customer segments it serves, ABB is well-positioned to benefit from the Energy and Fourth Industrial Revolution. With a heritage of more than 130 years, ABB operates in more than 100 countries with about 132,000 employees.

History of the ABB Group

The ABB Group was formed in 1988 through a merger between Asea AB and BBC Brown Boveri AG. Initially founded in 1883, Asea AB was a major participant in the introduction of electricity into Swedish homes and businesses and in the development of Sweden's railway network. In the 1940s and 1950s, Asea AB expanded into the power, mining and steel industries. Brown Boveri and Cie. (later renamed BBC Brown Boveri AG) was formed in Switzerland in 1891 and initially specialized in power generation and turbines. In the early to mid-1900s, it expanded its operations throughout Europe and broadened its business operations to include a wide range of electrical engineering activities.

In January 1988, Asea AB and BBC Brown Boveri AG each contributed almost all of their businesses to the newly formed ABB Asea Brown Boveri Ltd, of which they each owned 50 percent. In 1996, Asea AB was renamed ABB AB and BBC Brown Boveri AG was renamed ABB AG. In February 1999, the ABB Group announced a group reconfiguration designed to establish a single parent holding company and a single class of shares. ABB Ltd was incorporated on March 5, 1999, under the laws of Switzerland. In June 1999, ABB Ltd became the holding company for the entire ABB Group. This was accomplished by having ABB Ltd issue shares to the shareholders of ABB AG and ABB AB, the two companies that formerly owned the ABB Group. The ABB Ltd shares were exchanged for the shares of those two companies, which, as a result of the share exchange and certain related transactions, became wholly-owned subsidiaries of ABB Ltd. ABB Ltd shares are currently listed on the SIX Swiss Exchange, the NASDAQ OMX Stockholm Exchange and the New York Stock Exchange (in the form of American Depositary Shares).

Organizational structure

Our business is international in scope and we generate revenues in numerous currencies. We are headquartered in Zurich, Switzerland.

We manage our business based on a divisional structure, which until December 31, 2016, comprised of four divisions: Electrification Products, Discrete Automation and Motion, Process Automation and Power Grids. For a breakdown of our consolidated revenues (i) by operating division and (ii) derived from each geographic region in which we operate, see "Analysis of Results of Operations – Revenues".

Effective January 1, 2017, ABB operates in a streamlined set-up of four divisions: Electrification Products, Robotics and Motion, Industrial Automation and Power Grids. The divisions will be

empowered as entrepreneurial units within ABB, reflected in an enhancement of their performance and compensation model focusing on individual accountability and responsibility. The divisions benefit from sales collaboration orchestrated by regions and countries as well as from the group-wide digital offering, ABB's low-cost centralized administrative structure, common supply chain management and corporate research centers. ABB intends to continue to strengthen its divisions through active portfolio management. This includes pursuing strategic additions, transforming business models and pruning non-core businesses. Electrification Products strives to be the partner of choice for electrification across numerous consumption points, Robotics and Motion strives to be the partner of choice for robotics and intelligent motion solutions, Industrial Automation strives to be the partner of choice for industrial automation and Power Grids strives to be the partner of choice for stronger, smarter and greener grids. See "Business Divisions – Division realignment" for additional information related to the realignment of certain business divisions.

Except where the context otherwise requires or where otherwise indicated, the information below is presented to reflect our business prior to this realignment to be consistent with the basis used in preparing our Consolidated Financial Statements.

We operate in approximately 100 countries across three regions: Europe, the Americas, and Asia, Middle East and Africa (AMEA). A breakdown of our employees by geographic region is as follows:

	December 31,		
	2016	2015	2014
Europe	61,400	61,600	63,000
The Americas	29,000	30,900	32,200
Asia, Middle East and Africa	41,900	43,300	45,200
Total	132,300	135,800	140,400

The proportion of our employees that are represented by labor unions or are the subject of collective bargaining agreements varies based on the labor practices of each country in which we operate.

Business Divisions

Electrification Products Division

Overview

The Electrification Products division provides solutions across the full electrical value chain from the substation to the point of consumption. The innovations from this business enable a safer and more reliable electrical flow, with a full range of low- and medium-voltage products and solutions for intelligent protection and connection as well as pre-engineered packaged solutions and services tailored to customers' needs. The portfolio – within increasingly digital and connected solutions – includes modular substation packages, distribution automation products, switchgear, circuit breakers, measuring and sensing devices, control products, wiring accessories, and enclosures and cabling systems, including KNX systems (global standard for home and building control) designed to integrate and automate a building's lighting, heating and ventilation, and security and data communication networks.

Most of the division's revenue is derived from sales through distributors, wholesalers, original equipment manufacturers (OEMs), system integrators, utilities and panel builders, with some direct sales to end-users, utilities and other ABB divisions.

The Electrification Products division had approximately 40,600 employees as of December 31, 2016, and generated $9.3 billion of revenues in 2016.

Customers

The Electrification Products division serves a wide range of customers who are connecting, protecting and controlling electricity from a number of industry segments including buildings, data centers, rail, wind and solar, food and beverage, marine and oil and gas.

Products and Services

The businesses of the Electrification Products division are more fully described below.

The Protection and Connection business offers products that protect, control and connect people, plants and systems. ABB offers solutions to restore power rapidly in case of a fault and helps provide optimum protection for people and electrical installations. The product offering ranges from miniature circuit breakers to high-capacity molded-case and air-circuit breakers and includes safety switches used for power distribution in factories and buildings, switchgear systems for short circuit and overload protection as well as cabling and connection components. In addition, the business offers terminal blocks, a range of contactors, soft starters, starters, proximity sensors, safety products for industrial protection, limit switches and manual motor starters, along with electronic relays and overload relays.

The Building Products business provides smart home and intelligent building control systems, also known as KNX protocol, to optimize efficiency, safety and comfort through the automated management of lighting, shutters and security. In addition, the business supplies conventional wiring accessories, industrial plugs and sockets, and enclosures ideal for single family homes, multiple dwellings, commercial buildings, infrastructure and industrial applications.

The Installation Products business offers products for low-voltage wire and cable management, making the task of fastening, protecting, insulating and connecting wires easier and quicker for industrial applications, construction, communications, utility and OEM professionals, as well as do-it-yourself specialists. The business offers emergency lighting and lighting for explosive environments, as well as lightning protection and earth grounding apparatus.

The Medium Voltage Products business helps utility, industry and transport & infrastructure customers to improve power quality and control, reduce outage time and enhance operational reliability and efficiency. The business offers products and services that largely serve the power distribution sector, often providing the link between high-voltage transmission systems and low-voltage users. Its comprehensive offering includes medium-voltage equipment (1 to 50 kilovolts), indoor and outdoor circuit breakers, reclosers, fuses, contactors, relays, instrument transformers, sensors, motor control centers, ring main units for primary and secondary distribution, as well as a range of air- and gas-insulated switchgear. It also produces indoor and outdoor modular systems and other solutions to facilitate efficient and reliable power distribution.

The Electrification Solutions business offers systems solutions to customers across low- and medium-voltage applications, integrating the entire offering from the division into complete solutions for customers, adding value through design, engineering, project management and service.

In addition, the service offerings of the Electrification Products division span the entire value chain, from the moment a customer makes the first inquiry to disposal and recycling of the product. Throughout the value chain, ABB provides training, technical support and customized contracts. All of this is supported by an extensive global sales and service network.

Sales and Marketing
Sales are primarily made through indirect sales channels such as distributors and wholesalers to end customers including installers and system integrators. Direct customers include utilities, panel builders and machine builders, as well as other ABB divisions. The proportion of direct sales compared to channel partner sales varies among the different industries, product technologies and geographic markets. The business is focused on creating demand to support its channel sales, with a range of promotional activities and support services including configuration and other digital solutions.

Competition
The Electrification Products division's principal competitors vary by product line, but they include Eaton Corporation, Legrand, Schneider, Siemens, Hubbell, Leviton, Rittal and Chint Electrical.

Capital Expenditures
The Electrification Products division's capital expenditures for property, plant and equipment totaled $200 million in 2016, compared to $210 million and $248 million in 2015 and 2014, respectively. Investments in 2016 were primarily related to footprint changes, equipment replacement and upgrades. Geographically, in 2016, Europe represented 52 percent of the capital expenditures, followed by the Americas (32 percent) and AMEA (16 percent).

Discrete Automation and Motion Division

Overview
The Discrete Automation and Motion division provides products, solutions and related services that increase industrial productivity and energy efficiency. Our key products such as motors, generators, drives, power electronics and robotics provide power, motion and control for a wide

range of automation applications. The leading position in wind generators and a growing offering in solar complement the industrial focus, leveraging joint technology, channels and operations platforms.

Revenues are generated both from direct sales to end-users as well as from indirect sales through distributors, machine builders, system integrators, and panel builders.

The Discrete Automation and Motion division had approximately 29,100 employees as of December 31, 2016, and generated $8.7 billion of revenues in 2016.

Products and Services
The businesses of the Discrete Automation and Motion division are more fully described below.

The Robotics business offers robots, controllers, software systems, as well as complete robot automation solutions and a comprehensive range of advanced services for automotive and Tier One OEMs as well as for the general industry. These improve flexibility, quality, productivity and connectivity, as part of the factory of the future. Robots are also used in activities or environments which may be hazardous to employee health and safety, such as repetitive or strenuous lifting, dusty, hot or cold rooms, or painting booths. In the automotive industry, robot products and systems are used in such areas as press shop, body shop, paint shop, power train assembly, trim and final assembly. General industry segments in which robotics solutions are used range from metal fabrication, foundry, plastics, food and beverage, chemicals and pharmaceuticals, and electronics. Typical robotic applications in general industry include welding, material handling, machine tending, painting, picking, packing, palletizing and small parts assembly automation.

The Motors and Generators business supplies a comprehensive range of electrical motors, generators, and mechanical power transmission products. The range of electrical motors includes high efficiency motors that conform to leading environmental and Minimum Energy Performance Standards (MEPS). Efficiency is an important selection criterion for customers, because electric motors account for nearly two-thirds of the electricity consumed by industrial plants. The business unit manufactures synchronous motors for the most demanding applications and a full range of low- and high-voltage induction motors, for both IEC (International Electrotechnical Commission) and NEMA (National Electrical Manufacturers Association) standards. The business unit has recently launched a new condition monitoring solution for low voltage (LV) motors that monitors and provides vital motor performance intelligence to help improve uptime, extend motor lifetimes, and increase machine performance and productivity. It connects motors with the Internet of Things (IoT).

The Drives and Controls business provides low-voltage and medium-voltage drives and systems for industrial, commercial and residential applications. Drives provide speed, torque and motion control for equipment such as fans, pumps, compressors, conveyors, centrifuges, mixers, hoists, cranes, extruders, printing and textile machines. They are used in industries such as building automation, marine, power, transportation, food and beverage, metals, mining, oil and gas.

The Power Conversion business produces excitation and synchronizing systems that provide stability for power stations and high power rectifiers that convert alternating current (AC) to direct current (DC) for high-current applications such as electric arc furnaces and aluminum smelters. It also manufactures solar inverters, wind turbine converters, uninterruptible power supply systems and converters for power protection, as well as rail traction converters, DC wayside power solutions and a range of solutions for charging of electric vehicles.

The division also offers services that complement its products, including design and project management, engineering, installation, training and life-cycle care, energy efficiency appraisals and preventive maintenance.

Customers
The Discrete Automation and Motion division serves a wide range of customers. Customers include machinery manufacturers, process industries such as pulp and paper, oil and gas, and metals and mining companies, hybrid and batch manufacturers such as food and beverage companies, rail equipment manufacturers, discrete manufacturing companies such as '3C' (computer, communication and consumer electronic), utilities and renewable energy suppliers, particularly in the wind and solar sectors, as well as customers in the automotive industry and electric vehicle charging networks.

Sales and Marketing
Sales are made both through direct sales forces as well as through third-party channel partners, such as distributors, wholesalers, installers, machine builders and OEMs, system integrators, and panel builders. The proportion of direct sales compared to channel partner sales varies among the different industries, product technologies and geographic markets.

Competition
The Discrete Automation and Motion division's principal competitors vary by product line but include Fanuc Robotics, Kuka Robot Group, Rockwell Automation, Schneider, Siemens, Yaskawa, SMA and WEG Industries.

Capital Expenditures
The Discrete Automation and Motion division's capital expenditures for property, plant and equipment totaled $128 million in 2016, compared to $145 million and $192 million in 2015 and in 2014, respectively. Principal investments in 2016 were primarily related to equipment replacement and upgrades. Geographically, in 2016, Europe represented 47 percent of the capital expenditures, followed by the Americas (30 percent) and AMEA (23 percent).

Process Automation Division

Overview
The Process Automation division offers customers solutions that are designed to optimize the productivity, energy efficiency and safety of their industrial processes by combining the division's integrated control products, systems and service offerings with deep domain and process expertise of each end market. Solutions include turnkey engineering, control systems, measurement products, life cycle services, outsourced maintenance and industry-specific products such as electric propulsion for ships, Azipods, mine hoists, turbochargers and pulp and paper quality control equipment. The systems can link various processes and information flows which allows customers to manage their entire manufacturing and business process based on real-time access to plant information. Additionally, the systems allow customers to increase production efficiency, optimize their assets and reduce environmental waste. Some of the products from the Discrete Automation and Motion, Power Grids and Electrification Products divisions are integrated into the process control and electrification solutions offered by the Process Automation division.

The Process Automation division offerings are available as separately sold products or as part of a total automation, electrification and/or instrumentation system. The division's technologies are sold primarily through direct sales forces as well as third-party channels.

The division had approximately 23,600 employees as of December 31, 2016, and generated revenues of $6.6 billion in 2016.

Customers
The Process Automation division's end customers are primarily companies in the oil and gas, minerals and mining, metals, pulp and paper, chemicals and pharmaceuticals, food and beverage, power generation and marine industries. These customers are looking for complete automation, instrumentation, and electrification solutions that deliver value mainly through lower capital costs, increased plant availability, lower life cycle costs and reduced project costs.

Products and Services
The businesses of the Process Automation division are described in more detail below; solutions by end market as well as the stand alone products and solutions offerings.

The Oil, Gas and Chemicals business provides solutions across the entire hydrocarbon value chain, from exploration and production to supply, transport and distribution, as well as refining, chemicals and petrochemicals. ABB specializes in mastering the control loop and transforming client operations through actionable insights that optimize performance in real time. From the well head to the refinery, ABB technologies connect people with data to optimize performance, improve reliability, enhance efficiency and minimize environmental impact from project start-up throughout the entire plant life cycle.

Other Process Industry markets served include mining, minerals processing, metals, pharmaceuticals and pulp and paper as well as their associated service industries. The business' added value is deep industry expertise coupled with the ability to integrate both automation and electronics, resulting in faster start-up times, increased plant productivity and reduced overall capital and operating costs for customers. For mining, metals and cement industries, solutions include specialized products and services, as well as total production systems. The business designs, plans, engineers, supplies, erects and commissions electric equipment, drives, motors and equipment for automation and supervisory control within a variety of areas including mineral handling, mining operations, aluminum smelting, hot and cold steel applications and cement production. In the pharmaceuticals and fine chemicals areas, the business offers applications to support manufacturing, packaging, quality control and compliance with regulatory agencies. The offering for the pulp and paper industries includes quality control systems, control systems, drive systems, on-line sensors, actuators and field instruments.

ABB serves the Power Generation market with leading automation solutions for all types of power

generation such as coal, gas, combined-cycle, waste-to-energy as well as renewable sources such as hydro, solar, wind and biomass. With an offering that includes instrumentation and control systems, ABB technologies help optimize performance, improve reliability, enhance efficiency and minimize environmental impact throughout the plant life cycle. The business also serves the water industry, including applications such as pumping stations and desalination plants.

ABB services the Marine and Ports business through its leading solutions for specialty vessels, container and bulk cargo handling. For the shipping industry, ABB offers an extensive portfolio of integrated marine systems and solutions that improve the flexibility, reliability and energy efficiency of vessels. By coupling power, automation and marine software, proven fuel-efficient technologies and services that ensure maximum vessel uptime, ABB is in the position to improve the profitability of a customer's business throughout the entire life cycle of a fleet. ABB designs, engineers, builds, supplies and commissions automation and electrical systems for marine power generation, power distribution and electric propulsion, as well as turbochargers to improve efficiency. With ABB's integrated operations centers around the world and marine software solutions, owners and operators can run their fleets at lower fuel and maintenance cost, while improving crew, passenger, and cargo safety and overall productivity of their operations. In addition, ABB delivers automation and electrical systems for container and bulk cargo handling – from ship to gate. The systems and services help terminal operators meet the challenge of larger ships, taller cranes and bigger volumes per call, and make terminal operations safer, greener and more productive.

ABB offers an extensive portfolio of products and software from stand-alone basic control to integrated collaborative systems for complex or critical processes. One of the solutions, System 800xA, provides a scalable extended automation system for process and production control, safety, and production monitoring. Freelance, another solution, is a full-fledged, easy-to-use distributed control system for small to medium size applications. The PLC Automation portfolio offers a scalable range for small, middle and high-end applications. Components for basic automation solutions, process and safety controllers, field interfaces, panels, process recorders and Human Machine Interfaces are available through our Compact Product Suite offering. The product portfolio is complemented by Automation Sentinel, a subscription-based life cycle management program that provides services to maintain and continually advance and enhance ABB control systems (e.g. cyber security patches) and thus allows it to manage a customer's life cycle costs. The Advanced Services offering provides individual software-based services to continuously improve automation and processes. ABB also offers Manufacturing Execution Systems that create agility and transparency for production processes by synchronizing and orchestrating a flow across individual automation islands. An interactive software platform, Decathlon Software, combines plant operations data from control systems, enterprise resource planning (ERP) and other data sources into actionable information for decision-makers creates additional customer value. ABB focuses strongly on the human factor and thus offers operator interfaces from panels to holistic control room solutions with ergonomic furniture and control centers to drive productivity, quality and safety to new levels.

The offerings of the Measurement and Analytics business are designed to measure product properties, such as weight, thickness, color, brightness, moisture content and additive content. Actuators allow the customer to make automatic adjustments during the production process to improve the quality and consistency of the product. Field instruments measure properties of the process, such as flow rate, chemical content and temperature. The business also offers a full line of instrumentation and analytical products to analyze, measure and record industrial and power processes.

ABB manufactures and maintains turbochargers for diesel and gas engines having power levels ranging from 500 kilowatts to over 80 megawatts. The business provides engine builders and application operators with advanced turbocharging solutions for efficient and flexible application operations and in compliance with the most stringent environmental requirements.

In addition, ABB offers a complete range of life cycle services across all customer segments to help customers optimize their assets. Demand for process automation services is driven by customers seeking to increase productivity by improving the performance of existing equipment.

Sales and Marketing
The Process Automation division primarily uses its direct sales force as well as third-party channel partners, such as distributors, system integrators and OEMs. The majority of revenues are derived through the division's own direct sales channels.

Competition
The Process Automation division's principal competitors vary by industry or product line.

Competitors include Emerson, Honeywell, Metso Automation, Rockwell Automation, Schneider, Siemens, Voith, and Yokogawa Electric Corporation.

Capital Expenditures
The Process Automation division's capital expenditures for property, plant and equipment totaled $51 million in 2016, compared to $56 million and $47 million in 2015 and 2014, respectively. Principal investments in 2016 were in turbocharging and the measurement products businesses. Geographically, in 2016, Europe represented 57 percent of the capital expenditures, followed by AMEA (23 percent) and Americas (20 percent).

Power Grids Division

Overview
The Power Grids division is a global leader in power and automation technologies that help balance the growing need for electricity with minimum environmental impact, by enabling a stronger, smarter and greener grid. The Power Grids division provides electrical and automation product, system, software and service solutions across the power value chain. These solutions support utility, industry and transport & infrastructure customers to plan, build, operate and maintain their power infrastructure. They are designed to facilitate the safe, reliable and efficient integration, transmission and distribution of bulk and distributed energy generated from conventional and renewable sources.

Around three quarters of the division's revenues come from utility customers but a significant portion is generated from industrial and transport & infrastructure customers. Power Grids has a worldwide customer base, with a wide spread of revenues from a regional perspective across the Americas, Europe and AMEA. The division also has a globally diversified and well balanced manufacturing and engineering footprint. Direct sales account for a significant part of the division's total revenues and external channel partners such as wholesalers, distributors and OEMs account for the rest.

The division had approximately 37,000 employees as of December 31, 2016, and generated $11.0 billion of revenues in 2016.

Customers
The Power Grids division's principal customers include utilities, transmission and distribution owners and operators as well as industrial, transportation and infrastructure customers.

Products and Services
The businesses of the Power Grids division are more fully described below.

The Grid Systems business is the world's largest provider of HVDC systems. These systems use Line Commutated Converter (HVDC Classic) technology or Voltage Sourced Converter (HVDC Light) technology. The portfolio also encompassed high-voltage AC and DC cables, mainly used for subsea or underground applications and HVDC links. It also includes a range of high power semiconductors, a core technology for power electronics deployed in HVDC, Flexible Alternating Current Transmission Systems (FACTS) and rail applications.

The Grid Integration business is one of the world's leading providers of transmission and distribution substations and associated life-cycle services. The substations are provided either as engineered solutions (system integration) or on a turnkey, engineering, procurement, construction (EPC) basis, for utility and non-utility applications including renewables, rail, data-centers, industry, battery energy storage and shore-to-ship power supply. This business is also the leading global provider of FACTS, which includes Static Var Compensation (SVC) and static compensator (STATCOM) technology. These systems stabilize voltages, minimize losses, and keep power quality in accordance with grid codes.

The Transformers business supplies transformers that are an integral component found across the power value chain, enabling the efficient and safe conversion of electricity to different voltages. ABB is the world's largest maker of transformers. The product range is designed for reliability, durability and efficiency with a portfolio that includes power transformers, dry- and liquid-distribution transformers, traction transformers for rail applications, and special application transformers and related components such as insulation kits, bushings and other transformer accessories. In addition, ABB's power transformers are pushing the voltage barrier to unprecedented levels of 1100 kV DC and 1200 kV AC, facilitating more power to be transported longer distances with minimum losses. Other technology developments include grid-resilient transformers designed to withstand physical attack, eco-efficient transformers using biodegradable oil and innovative sensor-based as well as software-leveraging solutions for remote maintenance and asset optimization.

The High Voltage products business is a global leader in high-voltage switchgear with a portfolio spanning air-insulated, gas-insulated and hybrid technologies. It also manufactures generator circuit breakers, a key product for integrating large power plants into the grid. The portfolio also includes a broad range of capacitors and filters that facilitate power quality as well as instrument transformers and other substation components.

The Grid Automation business is at the forefront of grid automation and digitalization. It supplies substation automation products, systems and services. It also provides Supervisory Control and Data Acquisition (SCADA) systems for transmission and distribution networks as well as a range of wireless, fiber optic and power line carrier based telecommunication technologies for mission critical applications. This business also offers microgrid solutions that are being increasingly deployed for remote and partially grid connected applications. Also included in this business is the enterprise software portfolio – a provider of an industry-leading suite of software solutions that help utilities and other asset-intensive industries (e.g. rail, mining) manage, maintain and optimize their assets.

The division also provides services which represent an increasing part of each business and which are a growing focus area for the division with its significant installed product base. The portfolio of services offered includes spare parts, installation, commissioning, condition monitoring and maintenance services, on- and off-site repairs as well as retrofits and upgrades. Increasingly more advanced software-based monitoring and advisory services are being added to the portfolio to support the development of the digitalization of the grids.

Competition
On a global basis, the Power Grids division faces worldwide competition across its portfolio mainly from Siemens and General Electric (GE Alstom). It also competes in specific geographies and in parts of the business with companies such as Hyundai, Hyosung, Crompton Greaves, TBEA and NARI. The breadth of its portfolio, technology and innovation, a global footprint and a vast installed base enable the division to maintain its leading position in the power sector.

Capital Expenditures
The Power Grids division's capital expenditures for property, plant and equipment totaled $203 million in 2016, compared to $191 million and $242 million in 2015 and 2014, respectively. Principal investments in 2016 were related to capacity expansion as well as the replacement of existing equipment, particularly in Sweden, the U.S. and Switzerland. Geographically, in 2016, Europe represented 68 percent of the capital expenditures, followed by the Americas (19 percent) and AMEA (13 percent).

Corporate and Other

Corporate and Other includes headquarters, central research and development, our real estate activities, Group Treasury Operations and other minor business activities. In addition, we have classified the historical business activities of significant divested businesses in Corporate and Other.

Corporate headquarters and stewardship activities include the operations of our corporate headquarters in Zurich, Switzerland, as well as corporate-related activities in various countries. These activities cover staff functions with group-wide responsibilities, such as accounting and financial reporting, corporate finance and taxes, planning and controlling, internal audit, legal and integrity, compliance, risk management and insurance, corporate communications, information systems, investor relations and human resources.

Corporate research and development primarily covers our research activities, as our development activities are organized under the four business divisions. We have two global research laboratories, one focused on power technologies and the other focused on automation technologies, which both work on technologies relevant to the future of our four business divisions. Each laboratory works on new and emerging technologies and collaborates with universities and other external partners to support our divisions in advancing relevant technologies and in developing cross-divisional technology platforms. We have corporate research centers in seven countries (China, India, Germany, Poland, Sweden, Switzerland and the U.S.).

Corporate and Other had approximately 2,000 employees at December 31, 2016.

Division realignment

On October 4, 2016, we announced a planned change in the composition of the business portfolio of our four divisions. Effective January 1, 2017, the scope of the Electrification Products division has been expanded to include the electric vehicle charging, solar, and power quality businesses from the Discrete Automation and Motion division.

In addition, the Discrete Automation and Motion division has been renamed the Robotics and Motion division while the Process Automation division has been renamed the Industrial Automation division.

Capital expenditures

Total capital expenditures for property, plant and equipment and intangible assets (excluding intangibles acquired through business combinations) amounted to $831 million, $876 million, $1,026 million in 2016, 2015 and 2014, respectively. In 2016, 2015 and 2014, capital expenditures were 27 percent, 24 percent and 21 percent lower, respectively, than depreciation and amortization (excluding acquisition-related amortization, capital expenditures were 3 percent lower and 3 percent and 11 percent higher, respectively, than depreciation and amortization).

Capital expenditures in 2016 remained at a significant level in mature markets, reflecting the geographic distribution of our existing production facilities. Capital expenditures in Europe and North America in 2016 were driven primarily by upgrades and maintenance of existing production facilities, mainly in the U.S., Sweden, Switzerland and Germany. Capital expenditures in emerging markets were highest in China, Poland, India, and Turkey. Capital expenditures in emerging markets were made primarily to increase production capacity by investment in new or expanded facilities. The share of emerging markets capital expenditures as a percentage of total capital expenditures in 2016, 2015 and 2014 was 35 percent, 31 percent and 29 percent, respectively.

At December 31, 2016, construction in progress for property, plant and equipment was $515 million, mainly in the U.S., China, Sweden, Switzerland and Germany. At December 31, 2015, construction in progress for property, plant and equipment was $559 million, mainly in Sweden, the U.S., China, Switzerland and Germany, while at December 31, 2014, construction in progress for property, plant and equipment was $653 million mainly in Sweden, the U.S., Switzerland, Saudi Arabia and China.

Our capital expenditures relate primarily to property, plant and equipment. For 2017, we estimate the expenditures for property, plant and equipment will be higher than our annual depreciation and amortization charge (excluding acquisition-related amortization).

Supplies and raw materials

We purchase a variety of raw materials and products which contain raw materials for use in our production and project execution processes. The primary materials used in our products, by weight, are copper, aluminum, carbon steel, mineral oil and various plastics. We also purchase a wide variety of fabricated products and electronic components. We operate a worldwide supply chain management network with employees dedicated to this function in our businesses and key countries. Our supply chain management network consists of a number of teams, each focusing on different product categories. These category teams, on global, divisional and/or regional level, take advantage of opportunities to leverage the scale of ABB and to optimize the efficiency of our supply networks, in a sustainable manner.

Our supply chain management organization's activities have continued to expand in recent years, to:

- pool and leverage procurement of materials and services,
- provide transparency of ABB's global spending through a comprehensive performance and reporting system linked to our ERP systems,
- strengthen ABB's supply chain network by implementing an effective product category management structure and extensive competency-based training, and
- monitor and develop our supply base to ensure sustainability, both in terms of materials and processes used.

We buy many categories of products which contain steel, copper, aluminum, crude oil and other commodities. Continuing global economic growth in many emerging economies, coupled with the volatility in foreign currency exchange rates, has led to significant fluctuations in these raw material costs over the last few years. While we expect global commodity prices to remain highly volatile,

we expect to offset some market volatility through the use of long-term contracts and global sourcing.

We seek to mitigate the majority of our exposure to commodity price risk by entering into hedges. For example, we manage copper and aluminum price risk using principally swap contracts based on prices for these commodities quoted on leading exchanges. ABB's hedging policy is designed to safeguard margins by minimizing price volatility and providing a stable cost base during order execution. In addition to using hedging to reduce our exposure to fluctuations in raw materials prices, in some cases we can reduce this risk by incorporating changes in raw materials prices into the prices of our products (through price escalation clauses).

Overall, during 2016 supply chain management personnel in our businesses, and in the countries in which we operate, along with the global category teams, continued to focus on value chain optimization efforts in all areas, while maintaining and improving quality and delivery performance.

In August 2012, the United States Securities and Exchange Commission (SEC) issued its final rules regarding "Conflict Minerals", as required by section 1502 of the Dodd-Frank Wall Street Reform and Consumer Protection Act. We initiated conflict minerals processes in 2013 and have continuously improved and tailored the processes to our value chain. We continue to work with our suppliers and customers, to enable us to comply with the rules and disclosure obligations. Further information on ABB's Conflict Minerals policy and supplier requirements can be found under "Material Compliance" at new.abb.com/about/supplying

Management overview

In 2016, we continued our Next Level transformation aimed at accelerating sustainable value creation and achieved significant results in our three focus areas: profitable growth, relentless execution and business-led collaboration.

Profitable growth

To drive a growth mindset, we adopted our "PIE" formula of penetration, innovation and expansion, with a focus on greater competitiveness, organic growth, and reducing risks by aligning business models more closely with our core competencies. In 2016, the PIE initiatives helped mitigate market headwinds resulting in a stable revenue development in local currencies (however, in U.S. dollars revenues declined 5 percent). There was positive demand in strategic growth areas such as food and beverage and robotics, while demand from other areas such as process markets remained subdued. Improving growth momentum resulted in order growth in the fourth quarter of 2016, supported by strong growth in key markets such as the U.S. and China.

At our Capital Markets Day in October 2016, we announced our decision related to the strategic portfolio review of our Power Grids division. We intend to continue the Power Grids transformation under ABB's ownership, with the focus on high-growth segments and digitally enabled services and software. As part of the ongoing transformation, we intend to continue to de-risk the Power Grids business model while tapping growth opportunities through strategic partnerships, such as those with two leading EPC companies, Fluor and Aibel, announced in 2016. The Power Grids division won large orders in the fourth quarter of 2016 reflecting customer trust in ABB's portfolio. These large orders included a $640 million UHVDC systems order for Raigarh-Pugalur in India and a $100 million order for the upgrade of the Sylmar converter station of the Pacific Intertie high-voltage direct current power link in the U.S.

We laid the groundwork for future growth with our quantum leap in digital – around ABB Ability™ – which we launched at our Capital Markets Day in October 2016. ABB Ability™ combines ABB's portfolio of digital solutions and services across all customer segments, cementing our leading position in the Fourth Industrial Revolution and support the competiveness of our four entrepreneurial divisions. We entered into a far-reaching strategic partnership with Microsoft to develop next-generation digital solutions on an integrated cloud platform. We believe that our customers will benefit from the unique combination of our deep domain knowledge and extensive portfolio of industrial solutions and Microsoft's Azure intelligent cloud, as well as B2B engineering

competence. Together, we believe the partners will drive digital transformation in customer segments across ABB's businesses such as robotics, marine and e-mobility. Our digital transformation will be led by our Chief Digital Officer, Guido Jouret, a pioneer in the Internet of Things, who joined ABB on October 1, 2016, reporting to our CEO, Ulrich Spiesshofer.

As of 2017, ABB is driving growth in four market-leading entrepreneurial divisions: Electrification Products, Robotics and Motion, Industrial Automation and Power Grids. The new division structure was effective January 1, 2017, and is now fully operational. The divisions are expected to drive growth as entrepreneurial units within ABB, in line with one of our core values – "ownership and performance". This is reflected in an enhanced performance and compensation model, which focuses on individual accountability and responsibility. The divisions benefit from sales collaboration orchestrated by ABB's regions and countries as well as from the group-wide digital offering, a low-cost centralized administrative structure, common supply chain management and corporate research centers. We plan to continue to strengthen our divisions through active portfolio management. This includes pursuing strategic additions, transforming business models and pruning non-core businesses.

Relentless execution

The transformation of Power Grids continues. In 2016, the division increased Operational EBITA by 16 percent, mainly driven by improved productivity, solid project execution and continued cost savings. These results reflect the success of the previously announced "step change" program to date. Going forward, the division is expected to continue to drive further transformation and value creation through its previously announced "Power Up" program. In light of this strong operational excellence performance, ABB increased the profitability targets for this division effective January 1, 2018.

A key objective of the Next Level strategy is to achieve world-class operational excellence at all levels of the company. The White Collar Productivity savings program has outperformed expectations since its launch in 2015. As a result we increased the program's cost reduction target by 30 percent to $1.3 billion. In 2016, the White Collar Productivity savings program amounted to $0.6 billion. We also continued to deliver on our regular cost-savings program of achieving savings equivalent to an expected 3–5 percent of cost of sales each year. We continued to execute our Net Working Capital program, which aims to free-up approximately $2 billion from 2015–2017. In 2016, we reduced working capital by around $550 million bringing the total reduction to $900 million for the first two years of the program.

In addition, we continued to align and drive our new performance-based compensation model, which has been implemented for 70,000 of our 132,000 employees.

Business-led collaboration

We are adopting a single corporate brand, consolidating all our brands around the world under one umbrella. Our portfolio of companies is being unified, showcasing the full breadth and depth of ABB's global offering under one master brand. The unified brand plays a key part in realizing the value potential of our digital offering, as we expect it will increase brand loyalty, price premiums and purchase probability. The brand features design elements intended to clearly articulate ABB's vision, direction and unique market position to customers, shareholders, employees and all other stakeholders. Our heritage as a pioneering technology leader and the three focus areas of our Next Level strategy are reflected in our new brand promise: "Let's write the future."™

Over the past two years, we have simplified our organizational setup, reducing the number of global regions from eight to three, and the divisions from five to four. In addition, many business units have been relocated closer to their key markets and customers, leading to a more responsive, customer-focused organization. The work is not over, but today ABB is a simpler, faster and more agile company, positioned at the heart of the Energy and Fourth Industrial Revolutions, and ready to take advantage of the exciting growth opportunities that are emerging across its markets.

Next Level strategy – stage 3

On October 4, 2016, we launched stage 3 of our Next Level strategy to unlock additional value for shareholders and customers. Building on the focus areas of profitable growth, relentless execution and business-led collaboration, stage 3 consists of four actions:

- Driving growth in four market-leading entrepreneurial divisions,
- Quantum leap in digital,
- Accelerating momentum in operational excellence, and
- Strengthening the global ABB brand.

Driving growth in four market-leading, entrepreneurial units
We are driving growth in four market leading entrepreneurial divisions: Electrification Products, Robotics and Motion, Industrial Automation and Power Grids. The new division structure was effective January 1, 2017, and is now fully operational.

A quantum leap in digital with ABB Ability™
The ABB Ability™ offering combines our portfolio of digital solutions and services across all customer segments, cementing our leading position in the Fourth Industrial Revolution and supporting the competitiveness of our four entrepreneurial divisions. With ABB Ability™, we see an annual addressable market of up to $20 billion.

Accelerating momentum in operational excellence
The White Collar Productivity savings program is on track to deliver the increased cost reduction target of $1.3 billion (run rate end of 2017). We intend to achieve these additional savings within the initially announced timeframe and for approximately $200 million lower of total combined restructuring program costs and implementation costs than initially announced in 2015. We are continuing our regular cost-savings programs to achieve savings equivalent to an expected 3–5 percent of cost of sales each year.

We continue to deliver on our Net Working Capital program which plans to free-up a total of $2 billion by the end of 2017. In the first two years of the program, we have freed up approximately $900 million.

Strengthening ABB's brand
We are adopting a single corporate brand, consolidating all our brands around the world under one umbrella. Our portfolio of companies is being unified, showcasing the full breadth and depth of our global offering under one master brand. The unified brand plays a key part in realizing the value potential of our digital offering, as we expect it will increase brand loyalty, price premiums and purchase probability.

Capital allocation

Our shareholders are expected to benefit from our expected strong cash generation and financial position through a new share buyback program of up to $3 billion from 2017 through 2019. In addition, the Board of Directors is proposing an eighth consecutive increase in the dividend to 0.76 Swiss francs per share at the 2017 AGM.

ABB's capital allocation priorities remain unchanged:
- funding organic growth, research and development, and capital expenditures at attractive cash returns,
- paying a steadily rising, sustainable dividend,
- investing in value-creating acquisitions, and
- returning additional cash to shareholders.

As a pioneering technology leader, committed to unlocking value, we believe we are well positioned to capture growth opportunities as the Energy and Fourth Industrial Revolutions unfold. We have a clear transformation plan to drive earnings per share and cash return on invested capital, as well as an efficient balance sheet to generate attractive returns for shareholders.

Outlook

Macroeconomic and geopolitical developments are signaling a mixed picture with continued uncertainty. Some macroeconomic signs in the U.S. remain positive and growth in China is expected to continue. The overall global market remains impacted by modest growth and increased uncertainties, such as the United Kingdom's potential withdrawal from the European Union and geopolitical tensions in various parts of the world. Oil prices and foreign exchange translation effects are expected to continue to influence our results. With this and the ongoing transformation of ABB, we expect 2017 to be a transitional year.

The attractive long-term demand outlook in our three major customer sectors – utilities, industry and transport & infrastructure – is driven by the Energy and Fourth Industrial Revolutions.

We believe we are well positioned to tap into these opportunities for long-term profitable growth with our strong market presence, broad geographic and business scope, technology leadership and financial strength.

Application of critical accounting policies

General

We prepare our Consolidated Financial Statements in accordance with U.S. GAAP and present these in U.S. dollars unless otherwise stated.

The preparation of our financial statements requires us to make assumptions and estimates that affect the reported amounts of assets, liabilities, revenues and expenses and the related disclosure of contingent assets and liabilities. We evaluate our estimates on an ongoing basis, including, but not limited to, those related to: gross profit margins on long-term construction-type contracts; costs of product guarantees and warranties; provisions for bad debts; recoverability of inventories, investments, fixed assets, goodwill and other intangible assets; the fair values of assets and liabilities assumed in business combinations; income tax expenses and provisions related to uncertain tax positions; pensions and other postretirement benefit assumptions; and legal and other contingencies. Where appropriate, we base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from our estimates and assumptions.

We deem an accounting policy to be critical if it requires an accounting estimate to be made based on assumptions about matters that are highly uncertain at the time the estimate is made and if different estimates that reasonably could have been used, or if changes in the accounting estimates that are reasonably likely to occur periodically, could materially impact our Consolidated Financial Statements. We also deem an accounting policy to be critical when the application of such policy is essential to our ongoing operations. We believe the following critical accounting policies require us to make difficult and subjective judgments, often as a result of the need to make estimates regarding matters that are inherently uncertain. These policies should be considered when reading our Consolidated Financial Statements.

Revenue recognition

We generally recognize revenues for the sale of goods when persuasive evidence of an arrangement exists, delivery has occurred, the price is fixed or determinable, and collectability is reasonably assured. With regard to the sale of products, delivery is not considered to have occurred, and therefore no revenues are recognized, until the customer has taken title to the products and assumed the risks and rewards of ownership of the products specified in the purchase order or sales agreement. Generally, the transfer of title and risks and rewards of ownership are governed by the contractually-defined shipping terms. We use various International Commercial shipping terms (as promulgated by the International Chamber of Commerce) such as Ex Works (EXW), Free Carrier (FCA) and Delivered Duty Paid (DDP). Subsequent to delivery of the products, we generally have no further contractual performance obligations that would preclude revenue recognition.

Revenues under long-term construction-type contracts are generally recognized using the percentage-of-completion method of accounting. We use the cost-to-cost method to measure progress towards completion on contracts. Under this method, progress of contracts is measured by actual costs incurred in relation to management's best estimate of total estimated costs, which are reviewed and updated routinely for contracts in progress. The cumulative effect of any change in estimate is recorded in the period in which the change in estimate is determined.

The percentage-of-completion method of accounting involves the use of assumptions and projections, principally relating to future material, labor and project-related overhead costs. As a consequence, there is a risk that total contract costs will exceed those we originally estimated and the margin will decrease or the long-term construction-type contract may become unprofitable. This risk increases if the duration of a contract increases because there is a higher probability that the circumstances upon which we originally developed estimates will change, resulting in increased costs that we may not recover. Factors that could cause costs to increase include:

- unanticipated technical problems with equipment supplied or developed by us which may require us to incur additional costs to remedy,
- changes in the cost of components, materials or labor,
- difficulties in obtaining required governmental permits or approvals,
- project modifications creating unanticipated costs,
- suppliers' or subcontractors' failure to perform, and
- delays caused by unexpected conditions or events.

Changes in our initial assumptions, which we review on a regular basis between balance sheet dates, may result in revisions to estimated costs, current earnings and anticipated earnings. We recognize these changes in the period in which the changes in estimates are determined. By recognizing changes in estimates cumulatively, recorded revenue and costs to date reflect the current estimates of the stage of completion of each project. Additionally, losses on long-term contracts are recognized in the period when they are identified and are based upon the anticipated excess of contract costs over the related contract revenues.

Short-term construction-type contracts, or long-term construction-type contracts for which reasonably dependable estimates cannot be made or for which inherent hazards make estimates difficult, are accounted for under the completed-contract method. Revenues under the completed-contract method are recognized upon substantial completion – that is: acceptance by the customer, compliance with performance specifications demonstrated in a factory acceptance test or similar event.

For non construction-type contracts that contain customer acceptance provisions, revenue is deferred until customer acceptance occurs or we have demonstrated the customer-specified objective criteria have been met or the contractual acceptance period has lapsed.

Revenues from service transactions are recognized as services are performed. For long-term service contracts, revenues are recognized on a straight-line basis over the term of the contract or, if the performance pattern is other than straight-line, as the services are provided. Service revenues reflect revenues earned from our activities in providing services to customers primarily subsequent to the sale and delivery of a product or complete system. Such revenues consist of maintenance-type contracts, field service activities that include personnel and accompanying spare parts, and installation and commissioning of products as a stand-alone service or as part of a service contract.

Revenues for software license fees are recognized when persuasive evidence of a non-cancelable license agreement exists, delivery has occurred, the license fee is fixed or determinable, and collection is probable. In software arrangements that include rights to multiple software products and/or services, the total arrangement fee is allocated using the residual method, under which revenue is allocated to the undelivered elements based on vendor-specific objective evidence (VSOE) of fair value of such undelivered elements and the residual amounts of revenue are allocated to the delivered elements. Elements included in multiple element arrangements may consist of software licenses, maintenance (which includes customer support services and unspecified upgrades), hosting, and consulting services. VSOE is based on the price generally charged when an element is sold separately or, in the case of an element not yet sold separately, the price established by authorized management, if it is probable that the price, once established, will not change once the element is sold separately. If VSOE does not exist for an undelivered element, the total arrangement fee will be recognized as revenue over the life of the contract or upon delivery of the undelivered element.

We offer multiple element arrangements to meet our customers' needs. These arrangements may involve the delivery of multiple products and/or performance of services (such as installation and training) and the delivery and/or performance may occur at different points in time or over different periods of time. Deliverables of such multiple element arrangements are evaluated to determine the unit of accounting and if certain criteria are met, we allocate revenues to each unit of accounting based on its relative selling price. A hierarchy of selling prices is used to determine the selling price of each specific deliverable that includes VSOE (if available), third-party evidence (if VSOE is not available), or estimated selling price if neither of the first two is available. The estimated selling price reflects our best estimate of what the selling prices of elements would be if the elements were sold on a stand-alone basis. Revenue is allocated between the elements of an arrangement consideration at the inception of the arrangement. Such arrangements generally include industry-specific performance and termination provisions, such as in the event of substantial delays or non-delivery.

Revenues are reported net of customer rebates and similar incentives. Taxes assessed by a governmental authority that are directly imposed on

revenue-producing transactions between us and our customers, such as sales, use, value-added and some excise taxes, are excluded from revenues.

These revenue recognition methods require the collectability of the revenues recognized to be reasonably assured. When recording the respective accounts receivable, allowances are calculated to estimate those receivables that will not be collected. These reserves assume a level of default based on historical information, as well as knowledge about specific invoices and customers. The risk remains that actual defaults will vary in number and amount from those originally estimated. As such, the amount of revenues recognized might exceed or fall below the amount which will be collected, resulting in a change in earnings in the future. The risk of deterioration is likely to increase during periods of significant negative industry, economic or political trends.

As a result of the above policies, judgment in the selection and application of revenue recognition methods must be made.

Contingencies

As more fully described in "Note 15 Commitments and contingencies" to our Consolidated Financial Statements, we are subject to proceedings, litigation or threatened litigation and other claims and inquiries related to environmental, labor, product, regulatory, tax (other than income tax) and other matters. We are required to assess the likelihood of any adverse judgments or outcomes to these matters, as well as potential ranges of probable losses. A determination of the provision required, if any, for these contingencies is made after analysis of each individual issue, often with assistance from both internal and external legal counsel and technical experts. The required amount of a provision for a contingency of any type may change in the future due to new developments in the particular matter, including changes in the approach to its resolution.

We record provisions for our contingent obligations when it is probable that a loss will be incurred and the amount can be reasonably estimated. Any such provision is generally recognized on an undiscounted basis using our best estimate of the amount of loss or at the lower end of an estimated range when a single best estimate is not determinable. In some cases, we may be able to recover a portion of the costs relating to these obligations from insurers or other third parties; however, we record such amounts only when it is probable that they will be collected.

We provide for anticipated costs for warranties when we recognize revenues on the related products or contracts. Warranty costs include calculated costs arising from imperfections in design, material and workmanship in our products. We generally make individual assessments on contracts with risks resulting from order-specific conditions or guarantees and assessments on an overall, statistical basis for similar products sold in larger quantities. There is a risk that actual warranty costs may exceed the amounts provided for, which would result in a deterioration of earnings in the future when these actual costs are determined.

Pension and other postretirement benefits

As more fully described in "Note 17 Employee benefits" to our Consolidated Financial Statements, we have a number of defined benefit pension and other postretirement plans and recognize an asset for a plan's overfunded status or a liability for a plan's underfunded status in our Consolidated Balance Sheets. We measure such a plan's assets and obligations that determine its funded status as of the end of the year.

Significant differences between assumptions and actual experience, or significant changes in assumptions, may materially affect the pension obligations. The effects of actual results differing from assumptions and the changing of assumptions are included in net actuarial loss within "Accumulated other comprehensive loss".

We recognize actuarial gains and losses gradually over time. Any cumulative unrecognized actuarial gain or loss that exceeds 10 percent of the greater of the present value of the projected benefit obligation (PBO) and the fair value of plan assets is recognized in earnings over the expected average remaining working lives of the employees participating in the plan, or the expected average remaining lifetime of the inactive plan participants if the plan is comprised of all or almost all inactive participants. Otherwise, the actuarial gain or loss is not recognized in the Consolidated Income Statements.

We use actuarial valuations to determine our pension and postretirement benefit costs and credits. The amounts calculated depend on a variety of key assumptions, including discount rates, mortality rates and expected return on plan assets. Under U.S. GAAP, we are required to consider current market conditions in making these assumptions. In particular, the discount rates

are reviewed annually based on changes in long-term, highly-rated corporate bond yields. Decreases in the discount rates result in an increase in the PBO and in pension costs. Conversely, an increase in the discount rates results in a decrease in the PBO and in pension costs. The mortality assumptions are reviewed annually by management. Decreases in mortality rates result in an increase in the PBO and in pension costs. Conversely, an increase in mortality rates results in a decrease in the PBO and in pension costs.

Holding all other assumptions constant, a 0.25-percentage point decrease in the discount rate would have increased the PBO related to our defined benefit pension plans by $394 million while a 0.25-percentage point increase in the discount rate would have decreased the PBO related to our defined benefit pension plans by $362 million.

The expected return on plan assets is reviewed regularly and considered for adjustment annually based upon the target asset allocations and represents the long-term return expected to be achieved. Decreases in the expected return on plan assets result in an increase to pension costs. Holding all other assumptions constant, an increase or decrease of 0.25 percentage points in the expected long-term rate of asset return would have decreased or increased, respectively, the net periodic benefit cost in 2016 by $24 million.

The funded status, which can increase or decrease based on the performance of the financial markets or changes in our assumptions, does not represent a mandatory short-term cash obligation. Instead, the funded status of a defined benefit pension plan is the difference between the PBO and the fair value of the plan assets. At December 31, 2016, our defined benefit pension plans were $1,403 million underfunded compared to an underfunding of $1,481 million at December 31, 2015. Our other postretirement plans were underfunded by $147 million and $178 million at December 31, 2016 and 2015, respectively.

We have multiple non-pension postretirement benefit plans. Our health care plans are generally contributory with participants' contributions adjusted annually. For purposes of estimating our health care costs, we have assumed health care cost increases to be 7.33 percent per annum for 2017, gradually declining to 5.00 percent per annum by 2028 and to remain at that level thereafter.

Income taxes

In preparing our Consolidated Financial Statements, we are required to estimate income taxes in each of the jurisdictions in which we operate. Tax expense from continuing operations is reconciled from the weighted-average global tax rate (rather than from the Swiss domestic statutory tax rate) as the parent company of the ABB Group, ABB Ltd, is domiciled in Switzerland. Income which has been generated in jurisdictions outside of Switzerland (hereafter "foreign jurisdictions") and has already been subject to corporate income tax in those foreign jurisdictions is, to a large extent, tax exempt in Switzerland. Therefore, generally no or only limited Swiss income tax has to be provided for on the repatriated earnings of foreign subsidiaries. There is no requirement in Switzerland for a parent company of a group to file a tax return of the group determining domestic and foreign pre-tax income and as our consolidated income from continuing operations is predominantly earned outside of Switzerland, corporate income tax in foreign jurisdictions largely determines our global weighted-average tax rate.

We account for deferred taxes by using the asset and liability method. Under this method, we determine deferred tax assets and liabilities based on temporary differences between the financial reporting and the tax bases of assets and liabilities. Deferred tax assets and liabilities are measured using the enacted tax rates and laws that are expected to be in effect when the differences are expected to reverse. We recognize a deferred tax asset when it is more likely than not that the asset will be realized. We regularly review our deferred tax assets for recoverability and establish a valuation allowance based upon historical losses, projected future taxable income and the expected timing of the reversals of existing temporary differences. To the extent we increase or decrease this allowance in a period, we recognize the change in the allowance within "Provision for taxes" in the Consolidated Income Statements unless the change relates to discontinued operations, in which case the change is recorded in "Income (loss) from discontinued operations, net of tax". Unforeseen changes in tax rates and tax laws, as well as differences in the projected taxable income as compared to the actual taxable income, may affect these estimates.

Certain countries levy withholding taxes, dividend distribution taxes or additional corporate income taxes (hereafter "withholding taxes") on dividend distributions. Such taxes cannot always be fully reclaimed by the shareholder, although they have to be declared and withheld by the subsidiary. Switzerland has concluded double taxation

treaties with many countries in which we operate. These treaties either eliminate or reduce such withholding taxes on dividend distributions. It is our policy to distribute retained earnings of subsidiaries, insofar as such earnings are not permanently reinvested or no other reasons exist that would prevent the subsidiary from distributing them. No deferred tax liability is set up, if retained earnings are considered as permanently reinvested, and used for financing current operations as well as business growth through working capital and capital expenditure in those countries.

We operate in numerous tax jurisdictions and, as a result, are regularly subject to audit by tax authorities. We provide for tax contingencies whenever it is deemed more likely than not that a tax asset has been impaired or a tax liability has been incurred for events such as tax claims or changes in tax laws. Contingency provisions are recorded based on the technical merits of our filing position, considering the applicable tax laws and OECD guidelines and are based on our evaluations of the facts and circumstances as of the end of each reporting period. Changes in the facts and circumstances could result in a material change to the tax accruals. Although we believe that our tax estimates are reasonable and that appropriate tax reserves have been made, the final determination of tax audits and any related litigation could be different than that which is reflected in our income tax provisions and accruals.

An estimated loss from a tax contingency must be accrued as a charge to income if it is more likely than not that a tax asset has been impaired or a tax liability has been incurred and the amount of the loss can be reasonably estimated. We apply a two-step approach to recognize and measure uncertainty in income taxes. The first step is to evaluate the tax position for recognition by determining if the weight of available evidence indicates that it is more likely than not that the position will be sustained on audit, including resolution of related appeals or litigation processes, if any. The second step is to measure the tax benefit as the largest amount which is more than 50 percent likely of being realized upon ultimate settlement. The required amount of provisions for contingencies of any type may change in the future due to new developments.

Goodwill and other intangible assets

We review goodwill for impairment annually as of October 1, or more frequently if events or circumstances indicate the carrying value may not be recoverable. We use either a qualitative or quantitative assessment method for each reporting unit. The qualitative assessment involves determining, based on an evaluation of qualitative factors, whether it is more likely than not that the fair value of a reporting unit is less than its carrying amount. If, based on this qualitative assessment, it is determined to be more likely than not that the reporting unit's fair value is less than its carrying value, the two-step quantitative impairment test is performed. If we elect not to perform the qualitative assessment for a reporting unit, then we perform the two-step impairment test.

Our reporting units are the same as our business divisions for Electrification Products, Discrete Automation and Motion, and Power Grids. For the Process Automation division, we determined the reporting units to be one level below the division, as the different products produced or services provided by this division do not share sufficiently similar economic characteristics to permit testing of goodwill on a total division level.

When performing the qualitative assessment, we first determine, for a reporting unit, factors which would affect the fair value of the reporting unit including: (i) macroeconomic conditions related to the business, (ii) industry and market trends, and (iii) the overall future financial performance and future opportunities in the markets in which the business operates. We then consider how these factors would impact the most recent quantitative analysis of the reporting unit's fair value. Key assumptions in determining the value of the reporting unit include the projected level of business operations, the weighted-average cost of capital, the income tax rate and the terminal growth rate.

If, after performing the qualitative assessment, we conclude that events or circumstances have occurred which would indicate that it is more likely than not that the fair value of the reporting unit is less than its carrying value, or if we have elected not to perform a qualitative assessment, the two-step quantitative impairment test is performed. In the first step, we calculate the fair value of the reporting unit (using an income approach whereby the fair value is calculated based on the present value of future cash flows applying a discount rate that represents our weighted-average cost of capital) and compare it to the reporting unit's carrying value. Where the fair value of the reporting unit exceeds the carrying value of the net assets assigned to that unit, goodwill is not impaired and no further testing is performed. However, if the carrying value of the net assets assigned to the

reporting unit is equal to or exceeds the reporting unit's fair value, we would perform the second step of the impairment test. In the second step, we would determine the implied fair value of the reporting unit's goodwill and compare it to the carrying value of the reporting unit's goodwill. If the carrying value of a reporting unit's goodwill were to exceed its implied fair value, then we would record an impairment loss equal to the difference. Any goodwill impairment losses would be recorded as a separate line item in the income statement in continuing operations, unless related to a discontinued operation, in which case the losses would be recorded in "Income (loss) from discontinued operations, net of tax".

In 2016, we performed the two-step quantitative impairment test for all of our reporting units to reflect new assumptions and forecasts resulting from our newly-developed strategic plan for the period 2017 to 2020. The quantitative test concluded that the estimated fair values for each of our reporting units exceeded their respective carrying values by more than 100 percent and as no reporting unit had a zero or negative carrying value, we concluded that none of the reporting units was "at risk" of failing the goodwill impairment test. Consequently, the second step of the impairment test was not performed.

The projected future cash flows used in the 2016 fair value calculation were based on approved business plans for the reporting units which covered a period of four years plus a calculated terminal value. The projected future cash flows required significant judgments and estimates involving variables such as future sales volumes, sales prices, awards of large orders, production and other operating costs, capital expenditures, net working capital requirements and other economic factors. The after-tax weighted-average cost of capital of 8 percent was based on variables such as the risk free rate derived from the yield of 10-year U.S. treasury bonds as well as an ABB-specific risk premium. The terminal value growth rate was assumed to be 1 percent. The mid-term tax rate used in the test was 27 percent. We based our fair value estimates on assumptions we believed to be reasonable, but which were inherently uncertain. Consequently, actual future results may differ from those estimates.

We assessed the reasonableness of the fair value calculations of our reporting units by reconciling the sum of the fair values for all our reporting units to our total market capitalization. The assumptions used in the fair value calculation were challenged each year (through the use of sensitivity analysis) to determine the impact on the fair value of the reporting units. Our sensitivity analysis in 2016 showed that, holding all other assumptions constant, a 1-percentage point increase in the discount rate would have reduced the calculated fair value by approximately 12.9 percent, while a 1-percentage point decrease in the terminal value growth rate would have reduced the calculated fair value by approximately 9.7 percent.

For 2015, our reporting units were the same as our former business divisions (Discrete Automation and Motion, Low Voltage Products, Power Products and Power Systems) with the exception of Process Automation, where they were determined to be one level below. In 2015, we performed a qualitative assessment and determined that it was not more likely than not that the fair value for each of these reporting units was below the carrying value. As a result, we concluded that it was not necessary to perform the two-step quantitative impairment test.

Intangible assets are reviewed for recoverability upon the occurrence of certain triggering events (such as a decision to divest a business or projected losses of an entity) or whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. We record impairment charges in "Other income (expense), net", in our Consolidated Income Statements, unless they relate to a discontinued operation, in which case the charges are recorded in "Income (loss) from discontinued operations, net of tax".

New accounting pronouncements

For a description of accounting changes and recent accounting pronouncements, including the expected dates of adoption and estimated effects, if any, on our Consolidated Financial Statements, see "Note 2 Significant accounting policies" to our Consolidated Financial Statements.

Research and development

Each year, we invest significantly in research and development. Our research and development focuses on developing and commercializing the technologies of our businesses that are of strategic importance to our future growth. In 2016, 2015, and 2014, we invested $1,300 million, $1,406 million and $1,499 million, respectively, or approximately 3.8 percent, 4.0 percent and 3.8 percent, respectively, of our annual consolidated revenues on research and development activities. We also had expenditures of $155 million, $271 million and $310 million, respectively, or approximately 0.5 percent, 0.8 percent and 0.8 percent, respectively, of our annual consolidated revenues in 2016, 2015 and 2014, on order-related development activities. These are customer- and project-specific development efforts that we undertake to develop or adapt equipment and systems to the unique needs of our customers in connection with specific orders or projects. Order-related development amounts are initially recorded in inventories as part of the work in process of a contract and then are reflected in cost of sales at the time revenue is recognized in accordance with our accounting policies.

In addition to continuous product development, and order-related engineering work, we develop platforms for technology applications in our automation and power businesses in our research and development laboratories, which operate on a global basis. Through active management of our investment in research and development, we seek to maintain a balance between short-term and long-term research and development programs and optimize our return on investment.

Universities are incubators of future technology, and a central task of our research and development team is to transform university research into industry-ready technology platforms. We collaborate with a number of universities and research institutions to build research networks and foster new technologies. We believe these collaborations shorten the amount of time required to turn basic ideas into viable products, and they additionally help us recruit and train new personnel. We have built numerous university collaborations in the U.S., Europe and Asia, including long-term, strategic relationships with the Carnegie Mellon University, Massachusetts Institute of Technology, North Carolina State University, ETH Zurich, EPFL Lausanne, Royal Institute of Technology (KTH) Stockholm, Cambridge University, Imperial College London, Huazhong University of Science and Technology (HUST) and Xi'an Jiaotong University (XJTU). Our collaborative projects include research on materials, sensors, micro-engineered mechanical systems, robotics, controls, manufacturing, distributed power and communication. Common platforms for power and automation technologies are developed around advanced materials, efficient manufacturing, information technology and data communication, as well as sensor and actuator technology.

Common applications of basic power and automation technologies can also be found in power electronics, electrical insulation, and control and optimization. Our power technologies, including our insulation technologies, current interruption and limitation devices, power electronics, flow control and power protection processes, apply as much to large, reliable, blackout-free transmission systems as they do to everyday household needs. Our automation technologies, including our control and optimization processes, power electronics, sensors and microelectronics, mechatronics and wireless communication processes, are designed to improve efficiency in plants and factories around the world, including our own.

Acquisitions and divestments

Divestments and Assets held for sale
There were no significant divestments in 2016 and 2015.

During 2014, ABB divested several businesses which were primarily its Full Service business, the Meyer Steel Structures business of Thomas & Betts, the heating, ventilation and air conditioning

(HVAC) business of Thomas & Betts and the Power Solutions business of Power-One. Total cash proceeds from all business divestments during 2014 amounted to $1,090 million, net of transaction costs and cash disposed.

In September 2016, ABB announced an agreement to divest its high-voltage cable system business (Cables business). The assets and liabilities of this business are shown as assets and liabilities held for sale in our Consolidated Balance Sheet as at December 31, 2016. The divestment was completed on March 1, 2017.

For more information on our divestments, see "Note 3 Acquisitions and business divestments" to our Consolidated Financial Statements.

Exchange rates

We report our financial results in U.S. dollars. Due to our global operations, a significant amount of our revenues, expenses, assets and liabilities are denominated in other currencies. As a consequence, movements in exchange rates between currencies may affect: (i) our profitability, (ii) the comparability of our results between periods, and (iii) the reported carrying value of our assets and liabilities.

We translate non-USD denominated results of operations, assets and liabilities to USD in our Consolidated Financial Statements. Balance sheet items are translated to USD using year-end currency exchange rates. Income statement and cash flow items are translated to USD using the relevant monthly average currency exchange rate.

Increases and decreases in the value of the USD against other currencies will affect the reported results of operations in our Consolidated Income Statements and the value of certain of our assets and liabilities in our Consolidated Balance Sheets, even if our results of operations or the value of those assets and liabilities have not changed in their original currency. As foreign exchange rates impact our reported results of operations and the reported value of our assets and liabilities, changes in foreign exchange rates could significantly affect the comparability of our reported results of operations between periods and result in significant changes to the reported value of our assets, liabilities and stockholders' equity.

While we operate globally and report our financial results in USD, exchange rate movements between the USD and both the EUR and the CHF are of particular importance to us due to (i) the location of our significant operations and (ii) our corporate headquarters being in Switzerland.

The exchange rates between the USD and the EUR and the USD and the CHF at December 31, 2016, 2015 and 2014, were as follows:

Exchange rates into $	2016	2015	2014
EUR 1.00	1.05	1.09	1.22
CHF 1.00	0.98	1.01	1.01

The average exchange rates between the USD and the EUR and the USD and the CHF for the years ended December 31, 2016, 2015 and 2014, were as follows:

Exchange rates into $	2016	2015	2014
EUR 1.00	1.10	1.11	1.33
CHF 1.00	1.01	1.04	1.09

When we incur expenses that are not denominated in the same currency as the related revenues, foreign exchange rate fluctuations could affect our profitability. To mitigate the impact of exchange rate movements on our profitability, it is our policy to enter into forward foreign exchange contracts to manage the foreign exchange transaction risk of our operations.

In 2016, approximately 80 percent of our consolidated revenues were reported in currencies other than the USD. The following percentages of consolidated revenues were reported in the following currencies:

- Euro, approximately 20 percent,
- Chinese renminbi, approximately 13 percent, and
- Swedish krona, approximately 5 percent.

In 2016, approximately 79 percent of our cost of sales and selling, general and administrative expenses were reported in currencies other than the USD. The following percentages of consolidated

cost of sales and selling, general and administrative expenses were reported in the following currencies:

- Euro, approximately 19 percent,
- Chinese renminbi, approximately 11 percent, and
- Canadian Dollar, approximately 5 percent.

We also incur expenses other than cost of sales and selling, general and administrative expenses in various currencies.

The results of operations and financial position of many of our subsidiaries outside of the United States are reported in the currencies of the countries in which those subsidiaries are located. We refer to these currencies as "local currencies". Local currency financial information is then translated into USD at applicable exchange rates for inclusion in our Consolidated Financial Statements.

The discussion of our results of operations below provides certain information with respect to orders, revenues, income from operations and other measures as reported in USD (as well as in local currencies). We measure period-to-period variations in local currency results by using a constant foreign exchange rate for all periods under comparison. Differences in our results of operations in local currencies as compared to our results of operations in USD are caused exclusively by changes in currency exchange rates.

While we consider our results of operations as measured in local currencies to be a significant indicator of business performance, local currency information should not be relied upon to the exclusion of U.S. GAAP financial measures. Instead, local currencies reflect an additional measure of comparability and provide a means of viewing aspects of our operations that, when viewed together with the U.S. GAAP results, provide a more complete understanding of factors and trends affecting the business. As local currency information is not standardized, it may not be possible to compare our local currency information to other companies' financial measures that have the same or a similar title. We encourage investors to review our financial statements and publicly-filed reports in their entirety and not to rely on any single financial measure.

Transactions with affiliates and associates

In the normal course of our business, we purchase products from, sell products to and engage in other transactions with entities in which we hold an equity interest. The amounts involved in these transactions are not material to ABB Ltd. Also, in the normal course of our business, we engage in transactions with businesses that we have divested. We believe that the terms of the transactions we conduct with these companies are negotiated on an arm's length basis.

Orders

Our policy is to book and report an order when a binding contractual agreement has been concluded with a customer covering, at a minimum, the price and scope of products or services to be supplied, the delivery schedule and the payment terms. The reported value of an order corresponds to the undiscounted value of revenues that we expect to recognize following delivery of the goods or services subject to the order, less any trade discounts and excluding any value added or sales tax. The value of orders received during a given period of time represents the sum of the value of all orders received during the period, adjusted to reflect the aggregate

value of any changes to the value of orders received during the period and orders existing at the beginning of the period. These adjustments, which may in the aggregate increase or decrease the orders reported during the period, may include changes in the estimated order price up to the date of contractual performance, changes in the scope of products or services ordered and cancellations of orders.

The undiscounted value of revenues we expect to generate from our orders at any point in time is represented by our order backlog. Approximately 13 percent of the value of total orders we recorded in 2016 were "large orders", which we define as orders from third parties involving a value of at least $15 million for products or services. Approximately 78 percent of the total value of large orders in 2016 were recorded by our Power Grids division and approximately 14 percent in our Process Automation division. The other divisions accounted for the remainder of the total large orders recorded during 2016. The remaining portion of total orders recorded in 2016 was "base orders", which we define as orders from third parties with a value of less than $15 million for products or services.

The level of orders fluctuates from year to year. Portions of our business involve orders for long-term projects that can take months or years to complete and many large orders result in revenues in periods after the order is booked. Consequently, the level of large orders and orders generally cannot be used to accurately predict future revenues or operating performance. Orders that have been placed can be cancelled, delayed or modified by the customer. These actions can reduce or delay any future revenues from the order or may result in the elimination of the order.

Performance measures

We evaluate the performance of our divisions based on orders received, revenues and Operational EBITA.

In 2016, the Company modified the definition of Operational EBITA to also exclude non-operational pension cost and changes in estimates relating to opening balance sheets of acquired businesses (changes in pre-acquisition estimates). After these revisions, Operational EBITA represents income from operations excluding (i) amortization expense on intangibles arising upon acquisitions (acquisition-related amortization), (ii) restructuring and restructuring-related expenses, (iii) non-operational pension cost, (iv) changes in pre-acquisition estimates, (v) gains and losses from sale of businesses, acquisition-related expenses and certain other non-operational items, as well as (vi) foreign exchange (FX)/commodity timing differences in income from operations consisting of: (a) unrealized gains and losses on derivatives (foreign exchange, commodities, embedded derivatives), (b) realized gains and losses on derivatives where the underlying hedged transaction has not yet been realized, and (c) unrealized foreign exchange movements on receivables/payables (and related assets/liabilities).

See "Note 23 Operating segment and geographic data" to our Consolidated Financial Statements for a reconciliation of the total consolidated Operational EBITA to income from continuing operations before taxes.

Analysis of results of operations

Our consolidated results from operations were as follows:

($ in millions, except per share data in $)	2016	2015	2014
Orders	33,379	36,429	41,515
Order backlog at December 31,	22,981	24,121	24,900
Revenues	33,828	35,481	39,830
Cost of sales	(24,081)	(25,347)	(28,615)
Gross profit	**9,747**	**10,134**	**11,215**
Selling, general and administrative expenses	(5,349)	(5,574)	(6,067)
Non-order related research and development expenses	(1,300)	(1,406)	(1,499)
Other income (expense), net	(111)	(105)	529
Income from operations	**2,987**	**3,049**	**4,178**
Net interest and other finance expense	(188)	(209)	(282)
Provision for taxes	(781)	(788)	(1,202)
Income from continuing operations, net of tax	**2,018**	**2,052**	**2,694**
Income from discontinued operations, net of tax	16	3	24
Net income	**2,034**	**2,055**	**2,718**
Net income attributable to noncontrolling interests	(135)	(122)	(124)
Net income attributable to ABB	**1,899**	**1,933**	**2,594**
Amounts attributable to ABB shareholders:			
Income from continuing operations, net of tax	1,883	1,930	2,570
Net income	1,899	1,933	2,594
Basic earnings per share attributable to ABB shareholders:			
Income from continuing operations, net of tax	0.88	0.87	1.12
Net income	0.88	0.87	1.13
Diluted earnings per share attributable to ABB shareholders:			
Income from continuing operations, net of tax	0.87	0.87	1.12
Net income	0.88	0.87	1.13

A more detailed discussion of the orders, revenues, Operational EBITA and income from operations for our divisions follows in the sections of "Divisional analysis" below entitled "Electrification Products", "Discrete Automation and Motion", "Process Automation", "Power Grids" and "Corporate and Other". Orders and revenues of our divisions include interdivisional transactions which are eliminated in the "Corporate and Other" line in the tables below.

Orders

				% Change	
($ in millions)	2016	2015	2014	2016	2015
Electrification Products	9,158	9,833	10,861	(7) %	(9) %
Discrete Automation and Motion	8,654	9,222	10,559	(6) %	(13) %
Process Automation	5,866	7,347	9,213	(20) %	(20) %
Power Grids	11,232	12,205	12,768	(8) %	(4) %
Operating divisions	**34,910**	**38,607**	**43,401**	**(10) %**	**(11) %**
Corporate and Other[1]	(1,531)	(2,178)	(1,886)	n.a.	n.a.
Total	**33,379**	**36,429**	**41,515**	**(8) %**	**(12) %**

(1) Includes interdivisional eliminations.

In 2016, total orders declined 8 percent (5 percent in local currencies) with orders decreasing in all divisions. The decline reflects ongoing macroeconomic and geopolitical uncertainties and challenges in many markets. The low demand from both the onshore and offshore oil segments negatively impacted many businesses, particularly the Process Automation division. This also contributed to the negative order development in the Discrete Automation and Motion division, despite the strong demand from various industries for robotics. Weak market conditions impacted the orders in Electrification Products and in Power Grids.

In 2016, base orders declined 5 percent (2 percent in local currencies) with negative impacts across all divisions. The decline of base orders reflects the uncertain global economic conditions across our key markets. Large orders decreased 27 percent (25 percent in local currencies), impacted by considerable investment delays. For additional information about divisional order performance, please refer to the relevant sections of "Divisional analysis" below.

In 2015, total orders declined 12 percent (2 percent in local currencies) and decreased in all divisions. The decline in reported orders was driven both by lower base orders and lower large orders. The order development reflected ongoing macroeconomic uncertainties and challenges in many markets as well as negative impacts from foreign exchange rate movements.

In 2015, orders decreased 9 percent in the Electrification Products division (steady in local currencies) as order growth in the Protection

and Connection business was offset by decreases in orders in the Building Products and the Electrification Solutions businesses. Orders in the Discrete Automation and Motion division declined 13 percent (5 percent in local currencies) on lower orders in all businesses, except Robotics, where orders increased in local currencies. Orders in the Process Automation division declined 20 percent (9 percent in local currencies) mainly due to lower capital and operating expenditures in the oil and gas sectors compared to the previous year. Orders declined 4 percent (increased 8 percent in local currencies) in the Power Grids division. The increase in local currencies was driven primarily by the receipt of several large orders in the Grid Systems business.

During 2015, base orders declined 14 percent (5 percent in local currencies) reflecting the global economic conditions which remained mixed across our key markets. Large orders decreased 5 percent (increased 10 percent in local currencies) but were higher in local currencies than the strong large order intake in 2014. Large orders increased in the Power Grids division where several large projects were awarded in 2015.

We determine the geographic distribution of our orders based on the location of the ultimate destination of the products' end use, if known, or the location of the customer. The geographic distribution of our consolidated orders was as follows:

				% Change	
($ in millions)	2016	2015	2014	2016	2015
Europe	11,213	12,568	14,319	(11) %	(12) %
The Americas	9,351	10,505	11,966	(11) %	(12) %
Asia, Middle East and Africa	12,815	13,356	15,230	(4) %	(12) %
Total	33,379	36,429	41,515	(8) %	(12) %

Orders in 2016 declined in all regions, although we achieved growth within some divisions in Europe and Asia, Middle East and Africa. Orders in Europe decreased 11 percent (9 percent in local currencies) due primarily to lower large orders compared to 2015. Orders in Europe for the Electrification Products and the Discrete Automation and Motion divisions grew in local currencies but were offset by decreases in the other divisions. In local currencies, orders were lower in Germany, the United Kingdom, Norway, Switzerland, Russia, France, Finland, Turkey and the Netherlands while orders increased in Italy, Sweden and Spain. In the Americas orders declined 11 percent (9 percent in local currencies) on lower base and large orders. In local currencies, orders decreased in the U.S. (mainly due to lower large orders), Canada, Brazil, Chile and Argentina while orders increased in Mexico. In Asia, Middle East and Africa, orders decreased 4 percent (flat in local currencies) as lower base orders were offset by strong demand for our power offering and higher large orders. Orders in China and India increased mainly due to investment activities in the HVDC power transmission technology while orders declined in Saudi Arabia, South Korea, the United Arab Emirates, Australia, Japan, South Africa and Qatar.

Orders in 2015 declined in all regions on lower orders in all divisions. Orders in Europe decreased 12 percent (increased 5 percent in local currencies). Orders in Europe were higher in local currencies due to the receipt of large orders for HVDC interconnections. In local currencies, orders were lower in the United Kingdom, Sweden, Finland, Switzerland, France, Spain and Russia, offset by higher orders in Germany, Norway, Italy, Turkey and the Netherlands. Orders declined 12 percent (6 percent in local currencies) in the Americas on lower base and large orders. In local currencies, orders decreased in the U.S., Canada and Brazil but were higher in Mexico, Chile and Argentina. In Asia, Middle East and Africa, orders decreased 12 percent (7 percent in local currencies) on lower base and large orders. In local currencies, orders declined in China, Saudi Arabia, South Korea, Australia and Japan while orders were higher in India, the United Arab Emirates, South Africa and Qatar.

Order backlog

	December 31,			% Change	
($ in millions)	2016	2015	2014	2016	2015
Electrification Products	2,612	2,872	2,798	(9) %	3 %
Discrete Automation and Motion	4,078	4,232	4,385	(4) %	(3) %
Process Automation	5,258	6,036	6,515	(13) %	(7) %
Power Grids	12,437	12,502	12,619	(1) %	(1) %
Operating divisions	24,385	25,642	26,317	(5) %	(3) %
Corporate and Other[1]	(1,404)	(1,521)	(1,417)	n.a.	n.a.
Total	22,981	24,121	24,900	(5) %	(3) %

[1] Includes intersegmental eliminations.

As at December 31, 2016, the consolidated order backlog declined 5 percent (2 percent in local currencies) and was lower in all divisions. The decline in the Electrification Products division was driven by the Medium Voltage Products and Building Products businesses. In the Discrete Automation and Motion division, the backlog was flat in local currencies as the increase in the Robotics and Power Conversion businesses were

offset by declines in the other businesses. In the Process Automation division, order backlog declined and was lower across all businesses, except for in the Measurement and Analytics business. In the Power Grids division, local currency order backlog increased, driven by the Transformers and Grid System businesses.

As at December 31, 2015, the consolidated order backlog decreased 3 percent (increased 5 percent in local currencies). Order backlog in all divisions was impacted by the effects of changes in foreign currency rates as the U.S. dollar strengthened against all major currencies during 2015. In local currencies, order backlog increased in all divisions. The increase in the Electrification Products division was driven by the Medium Voltage Products business. In the Discrete Automation and Motion division, the increase was driven by the Robotics and Power Conversion businesses. In the Process Automation division, orders were lower but order backlog increased due to the receipt of higher large orders near the end of 2015. In the Power Grids division, order backlog increased in the High Voltage and Transformers businesses and also benefitted from higher large orders received in the Grid Systems business during the year.

Revenues

				% Change	
($ in millions)	2016	2015	2014	2016	2015
Electrification Products	9,292	9,547	10,572	(3) %	(10) %
Discrete Automation and Motion	8,714	9,127	10,142	(5) %	(10) %
Process Automation	6,598	7,224	8,618	(9) %	(16) %
Power Grids	10,975	11,621	12,518	(6) %	(7) %
Operating divisions	35,579	37,519	41,850	(5) %	(10) %
Corporate and Other[1]	(1,751)	(2,038)	(2,020)	n.a.	n.a.
Total	33,828	35,481	39,830	(5) %	(11) %

Revenues in 2016, decreased 5 percent (2 percent in local currencies) and declined in all divisions. Revenues were lower due to declining orders during the year and a lower opening order backlog compared to the beginning of 2015. In the Process Automation division, a continued low level of orders from the oil and gas industry, as well as from mining and metals, negatively impacted revenues. Revenues in the Power Grids division were impacted by weaker order intake, the exit from certain businesses as well as lower pull-through revenues from other divisions. Revenues were positively impacted by growth in the Robotics business, despite market challenges while revenues in the Electrification Products division slightly increased in local currencies. For additional information about the divisional revenues performance, please refer to "Divisional analysis" below.

In 2015, revenues decreased 11 percent (1 percent in local currencies) and declined in all divisions. The decrease was due primarily to the impacts of the lower orders and lower opening order backlog in the Power Grids and Process Automation divisions compared to the beginning of 2014. In addition, the decrease was also due to the impacts of divestments made in 2014 and negative impacts from foreign exchange rate movements.

On a divisional basis, revenues in the Electrification Products division decreased 10 percent (steady in local currencies) and were lower in most businesses. Revenues declined 10 percent (2 percent in local currencies) in the Discrete Automation and Motion division on lower order intake in the short-cycle businesses such as low voltage motors and drives offset partly by local currency revenue increases in the Robotics and Power Conversion businesses. In the Process Automation division revenues decreased 16 percent (5 percent in local currencies) and were lower in local currencies in most businesses. Revenues were impacted primarily by decreases in the systems businesses such as the Marine and Ports and the Oil, Gas and Chemicals businesses but also by the divestment of the Full Service business at the end of 2014. Revenues in the Power Grids division decreased 7 percent (increased 3 percent in local currencies). In local currencies revenues grew, driven by service revenues and by steady execution of the order backlog.

We determine the geographic distribution of our revenues based on the location of the ultimate destination of the products' end use, if known, or the location of the customer. The geographic distribution of our consolidated revenues was as follows:

				% Change	
($ in millions)	2016	2015	2014	2016	2015
Europe	11,315	11,602	13,745	(2) %	(16) %
The Americas	9,741	10,554	11,490	(8) %	(8) %
Asia, Middle East and Africa	12,772	13,325	14,595	(4) %	(9) %
Total	33,828	35,481	39,830	(5) %	(11) %

In 2016, revenues decreased across all regions, although we achieved regional growth within some divisions. In Europe, revenues declined 2 percent (flat in local currencies) due to growth in the Electrification Products division and steady revenues in the Process Automation division. In local

currencies, revenues declined in Sweden, Norway, Switzerland, Germany and France, while revenues increased in Russia, the United Kingdom, Italy and Spain. Revenues from the Americas decreased 8 percent (5 percent in local currencies). In local currencies, revenues decreased in the U.S. and Brazil while revenues were higher in Canada, Mexico, Argentina and Chile. In Asia, Middle East and Africa, revenues decreased by 4 percent (1 percent in local currencies), supported by strong demand for our power offering. In local currencies, revenues declined in South Africa, Australia, Japan, Saudi Arabia and Singapore while revenues increased in China, India and Egypt.

In 2015, revenues declined in all regions. In Europe, revenues decreased 16 percent (increased 1 percent in local currencies). In local currencies, revenues declined in Norway, France, Switzerland, Spain and Russia. Revenues were flat in Italy, while revenues increased in Germany, the United Kingdom, Sweden and Finland. Revenues from the Americas declined 8 percent (2 percent in local currencies). In local currencies, revenues decreased in the U.S., Canada and Brazil but were higher in Mexico, Chile and Peru. In Asia, Middle East and Africa revenues decreased 9 percent (2 percent in local currencies). In local currencies, revenues declined in China, South Korea, Australia and Singapore while revenues increased in Saudi Arabia, India, the United Arab Emirates, Japan and South Africa.

Cost of sales

Cost of sales consists primarily of labor, raw materials and component costs but also includes indirect production costs, expenses for warranties, contract and project charges, as well as order-related development expenses incurred in connection with projects for which corresponding revenues have been recognized.

In 2016, cost of sales decreased 5 percent (2 percent in local currencies) to $24,081 million. As a percentage of revenues, cost of sales decreased from 71.4 percent in 2015 to 71.2 percent in 2016. In particular, the Process Automation and Power Grids divisions had a reduction in cost of sales as a percentage of revenues, resulting from improvement in project margins and savings from supply chain and operational excellence cost take-out programs. In 2016, cost of sales was negatively impacted by approximately 0.5 percent due to the charges recorded for a change in previously estimated warranty liabilities for certain solar inverters sold by Power-One in the Discrete Automation and Motion division.

In 2015, cost of sales decreased 11 percent (2 percent in local currencies) to $25,347 million. As a percentage of revenues, cost of sales decreased from 71.8 percent in 2014 to 71.4 percent in 2015. Cost of sales as a percentage of revenues decreased as benefits from higher cost savings and benefits from ongoing measures taken in the former Power Systems division's 'step change' program more than offset the impact from price erosion in the market and impacts from restructuring and related costs for the White Collar Productivity program.

Selling, general and administrative expenses

The components of selling, general and administrative expenses were as follows:

($ in millions)	2016	2015	2014
Selling expenses	3,480	3,729	4,054
Selling expenses as a percentage of orders received	10.4 %	10.2 %	9.8 %
General and administrative expenses	1,869	1,845	2,013
General and administrative expenses as a percentage of revenues	5.5 %	5.2 %	5.1 %
Total selling, general and administrative expenses	5,349	5,574	6,067
Total selling, general and administrative expenses as a percentage of revenues	15.8 %	15.7 %	15.2 %
Total selling, general and administrative expenses as a percentage of the average of orders received and revenues	15.9 %	15.5 %	14.9 %

In 2016, general and administrative expenses increased 1 percent compared to 2015 (4 percent in local currencies). As a percentage of revenues, general and administrative expenses increased from 5.2 percent to 5.5 percent. General and administrative expenses were impacted by approximately $183 million of restructuring and restructuring-related expenses for the White Collar Productivity program. Restructuring-related expenses include the additional costs of running parallel operations during the relocation and transition phase, advisory costs for external consultants, expenses associated with our internal restructuring program implementation teams and costs for hiring and training personnel at new locations.

In 2015, general and administrative expenses decreased 8 percent (increased 4 percent in local currencies) compared to 2014. As a percentage of revenues, general and administrative expenses increased from 5.1 percent to 5.2 percent. General and administrative expenses included

approximately $121 million from costs for the White Collar Productivity program and restructuring-related expenses of approximately $18 million.

In 2016, selling expenses decreased 7 percent compared to 2015 (decreased 4 percent in local currencies) primarily driven by lower restructuring expenses related to the White Collar Productivity program. Selling expenses as a percentage of orders received increased from 10.2 percent to 10.4 percent on lower orders. Selling expenses were impacted by approximately $34 million from costs for the White Collar Productivity program.

In 2015, selling expenses have decreased 8 percent (increased 3 percent in local currencies) compared to 2014. Selling expenses as a percentage of orders have increased from 9.8 percent to 10.2 percent. Selling expenses were impacted by approximately $89 million from costs for the White Collar Productivity program.

In 2016, selling, general and administrative expenses decreased 4 percent compared to 2015 (2 percent in local currencies) and as a percentage of the average of orders and revenues, selling, general and administrative expenses increased from 15.5 percent to 15.9 percent mainly impacted by lower orders and revenues.

In 2015, selling, general and administrative expenses decreased 8 percent (increased 3 percent in local currencies) compared to 2014 and as a percentage of the average orders and revenues, selling, general and administrative expenses increased from 14.9 percent to 15.5 percent on both lower revenues and orders and higher costs.

Non-order related research and development expenses

In 2016, non-order related research and development expenses decreased 8 percent (6 percent in local currencies) compared to 2015 and reflects the savings realized by reducing the number of employees. In 2015, non-order related research and development expenses decreased 6 percent (increased 6 percent in local currencies) compared to 2014. Non-order related research and development expenses as a percentage of revenues decreased in 2016 to 3.8 percent, after increasing to 4.0 percent in 2015 from 3.8 percent in 2014.

Other income (expense), net

($ in millions)	2016	2015	2014
Restructuring and restructuring-related expenses[1]	(49)	(67)	(37)
Net gain from sale of property, plant and equipment	38	26	17
Asset impairments	(61)	(33)	(34)
Net gain (loss) from sale of businesses	(10)	(20)	543
Misappropriation loss, net	(73)	—	—
Income from equity-accounted companies and other income (expense)	44	(11)	40
Total	(111)	(105)	529

"Other income (expense), net" primarily includes certain restructuring and restructuring-related expenses, gains and losses from sale of businesses and sale of property, plant and equipment, recognized asset impairments, as well as our share of income or loss from equity-accounted companies.

In 2016, "Other income (expense), net" was an expense of $111 million compared to an expense of $105 million in 2015. In 2016, we recorded lower restructuring costs (see "Note 22 Restructuring and related expenses"), higher gains on sale of property, plant and equipment, and lower losses from sale of businesses. Higher asset impairments also negatively impacted Other income (expense), net. We also recorded a loss of $73 million, net of expected insurance recoveries, for the misappropriation of cash by the treasurer of our subsidiary in South Korea. In addition, in 2016, other income included gains on certain foreign currency derivatives entered into in connection with the planned sale of the Cables business.

In 2015, "Other income (expense), net" was an expense of $105 million, compared with an income of $529 million in 2014, and changed primarily due to higher restructuring costs and lower gains from sale of businesses.

Income from operations

				% Change[1]	
($ in millions)	2016	2015	2014	2016	2015
Electrification Products	1,335	1,356	1,562	(2) %	(13) %
Discrete Automation and Motion	831	991	1,422	(16) %	(30) %
Process Automation	696	685	931	2 %	(26) %
Power Grids	888	613	257	45 %	139 %
Operating divisions	3,750	3,645	4,172	3 %	(13) %
Corporate and Other	(767)	(609)	(5)	n.a.	n.a.
Intersegment elimination	4	13	11	n.a.	n.a.
Total	2,987	3,049	4,178	(2) %	(27) %

(1) Certain percentages are stated as n.a. as the computed change would not be meaningful.

In 2016 and 2015, changes in income from operations were a result of the factors discussed above and in the divisional analysis below.

Net interest and other finance expense

Net interest and other finance expense consists of "Interest and dividend income" offset by "Interest and other finance expense".

"Interest and other finance expense" includes interest expense on our debt, the amortization of upfront transaction costs associated with long-term debt and committed credit facilities, commitment fees on credit facilities, foreign exchange gains and losses on financial items and gains and losses on marketable securities.

($ in millions)	2016	2015	2014
Interest and dividend income	73	77	80
Interest and other finance expense	(261)	(286)	(362)
Net interest and other finance expense	(188)	(209)	(282)

In 2016, "Interest and other finance expense" decreased compared to 2015. Interest expense on bonds and other debt was lower and interest charges for uncertain tax positions were lower in 2016 compared to 2015. This was partially offset by higher foreign exchange losses.

In 2015, "Interest and other finance expense" decreased compared to 2014, mainly due to a reduction in foreign exchange losses and lower interest expense on debt. Interest expense on debt was lower due to lower effective interest rates and lower foreign currency exchange rates. In addition, interest charges for uncertain tax positions were lower in 2015 compared to 2014.

Provision for taxes

($ in millions)	2016	2015	2014
Income from continuing operations before taxes	2,799	2,840	3,896
Provision for taxes	(781)	(788)	(1,202)
Effective tax rate for the year	27.9 %	27.7 %	30.9 %

In 2016, the effective tax rate increased to 27.9 percent from 27.7 percent. The distribution of income within the group resulted in a lower weighted-average global tax rate. Changes in the valuation allowance in 2016 compared to 2015 lowered the effective tax rate, as did the impact of the interpretation of tax law and double tax treaty agreements by competent tax authorities. However, these were offset by the negative impacts of changes in enacted tax rates and lower benefits arising from research and development activities.

In 2015, the effective tax rate of 27.7 percent included a net increase in valuation allowance of deferred taxes of $57 million, as we determined it was not more likely than not that such deferred tax assets would be realized. In addition, we recorded a benefit of $50 million relating to tax credits arising from research and development activities and a charge of $74 million relating to the interpretation of tax law and double tax treaty agreements by competent tax authorities.

In 2014, the effective tax rate of 30.9 percent included the effects of taxes on net gains on sale of businesses. Included in the provision for taxes of $1,202 million were taxes of $279 million relating to $543 million of gains on sale of businesses. These divestment transactions increased the effective tax rate as gains were realized primarily in higher-tax jurisdictions and the goodwill allocated to the divested businesses was not deductible for tax purposes. Excluding the effects of these divestment transactions, the effective tax rate for 2014 would have been 27.5 percent.

The provision for taxes in 2014 included a net increase of valuation allowance on deferred taxes of $52 million, as we determined it was not more likely than not that such deferred tax assets would be realized. This amount included an expense of $31 million related to certain of our operations in South America.

The provision for taxes in 2014 also included tax credits, arising in foreign jurisdictions, for which the technical merits did not allow a benefit to be taken.

Income from continuing operations, net of tax

As a result of the factors discussed above, income from continuing operations, net of tax, decreased by $34 million to $2,018 million in 2016 compared to 2015, and decreased $642 million to $2,052 million in 2015 compared to 2014.

Income from discontinued operations, net of tax

The income from discontinued operations, net of tax, for 2016, 2015 and 2014, was not significant.

Net income attributable to ABB

As a result of the factors discussed above, net income attributable to ABB decreased by $34 million to $1,899 million in 2016 compared to 2015, and decreased $661 million to $1,933 million in 2015 compared to 2014.

Earnings per share attributable to ABB shareholders

(in $)	2016	2015	2014
Income from continuing operations, net of tax			
Basic	0.88	0.87	1.12
Diluted	0.87	0.87	1.12
Net income attributable to ABB			
Basic	0.88	0.87	1.13
Diluted	0.88	0.87	1.13

Basic earnings per share is calculated by dividing income by the weighted-average number of shares outstanding during the year. Diluted earnings per share is calculated by dividing income by the weighted-average number of shares outstanding during the year, assuming that all potentially dilutive securities were exercised, if dilutive. Potentially dilutive securities comprise: outstanding written call options and outstanding options and shares granted subject to certain conditions under our share-based payment arrangements. See "Note 20 Earnings per share" to our Consolidated Financial Statements.

Divisional analysis

Electrification Products

The financial results of our Electrification Products division were as follows:

				% Change	
($ in millions)	2016	2015	2014	2016	2015
Orders	9,158	9,833	10,861	(7) %	(9) %
Order backlog at December 31,	2,612	2,872	2,798	(9) %	3 %
Revenues	9,292	9,547	10,572	(3) %	(10) %
Income from operations	1,335	1,356	1,562	(2) %	(13) %
Operational EBITA	1,528	1,561	1,739	(2) %	(10) %

Orders

In 2016, orders decreased 7 percent (4 percent in local currencies). In the Medium Voltage Products and the Electrification Solutions businesses demand was lower due to weak market conditions and lower orders from EPC projects. Orders also decreased in the Installation Products business on weaker orders from the distributor and end-customer channels. Orders were higher in the Building Products business largely due to higher orders from distributors, but partially offset by lower demand from our direct end-customers. Orders were stable in the Protection and Connection business with growth in OEM orders offset by weaker order intake from the distributor and end-customers channels.

In 2015, orders decreased 9 percent (steady in local currencies). Local currency order growth in the Protection and Connection business was offset by decreases in orders in the Building Products and the Electrification Solutions

businesses while orders in local currencies were steady in the Medium Voltage Products business.

The geographic distribution of orders for our Electrification Products division was as follows:

(in %)	2016	2015	2014
Europe	37	35	36
The Americas	27	26	24
Asia, Middle East and Africa	36	39	40
Total	100	100	100

In 2016, the share of orders in Europe increased driven by growth in several countries, especially Germany. In the Americas, while orders declined in local currencies, the region was able to slightly increase its share of orders relative to the larger decrease in the Asia, Middle East and Africa region. In Asia, Middle East and Africa the share of orders decreased primarily due to lower orders in China and Saudi Arabia compared to 2015.

In 2015, the share of orders in Europe decreased primarily due to the strong U.S. dollar. The order development in the Americas was steady, resulting in an increase in the share of orders compared to the other two geographies. The share of orders in Asia, Middle East and Africa decreased due to a slowdown of markets in China, the Middle East and Australia. The share of orders in that region compared to 2014 was also partially affected by the strong U.S. dollar.

Order backlog
In 2016, order backlog decreased by 9 percent (decrease of 5 percent in local currencies), primarily on decreased backlog in the Medium Voltage Products business on higher order execution for modular systems and primary switchgear.

In 2015, order backlog increased by 3 percent (increased by 11 percent in local currencies), driven mainly by higher backlog in the Medium Voltage Products business.

Revenues
In 2016, revenues decreased by 3 percent compared to 2015 (increased 1 percent in local currencies). In local currencies, revenues increased in the Medium Voltage Products business unit, which was primarily driven by sales for modular systems and which was partly offset by lower revenues from primary switchgear. Our Building Products business also showed an increase in revenues with growth driven through the distribution and panel builder channels, which was slightly offset by lower revenues from direct end-customers. Revenues were lower in all other business units on lower demand from the distribution and OEM channels, although this was partly offset by increases in the panel builder channel.

In 2015, revenues decreased by 10 percent (steady in local currencies). In local currencies, revenues were higher in the Medium Voltage Products, Protection and Connection and Installation Products businesses and were lower in the Building Products and Electrification Solutions businesses.

The geographic distribution of revenues for our Electrification Products division was as follows:

(in %)	2016	2015	2014
Europe	37	34	37
The Americas	26	26	25
Asia, Middle East and Africa	37	40	38
Total	100	100	100

In 2016, the share of revenues in Europe increased due to growth across several European countries, especially Germany. Revenues in the Americas decreased slightly, maintaining a steady overall share of revenues. The share of revenues in Asia, Middle East and Africa decreased primarily due to lower revenues in China and the Middle East.

In 2015, the share of revenues in Europe decreased primarily due to the strong U.S. dollar, as the region otherwise showed solid local currency growth. The revenues development in the Americas was steady, resulting in an increase in the share of revenues compared to the other two geographies. The share of revenues in Asia, Middle East and Africa increased slightly, however in local currencies the region revenues were lower compared to 2014 due to a slowdown of markets in China, the Middle East and Australia.

Income from operations
In 2016, income from operations decreased 2 percent primarily due to lower revenues and lower gross margins compared to 2015. Reductions in selling, general and administrative expenses resulting from ongoing restructuring and cost savings programs, as well as lower restructuring and restructuring-related expenses partly offset the impact of lower gross margins. In addition changes in foreign currencies, including the impacts from FX/commodity timing differences summarized in the table below, negatively impacted income from operations by 4 percent.

In 2015, income from operations decreased 13 percent. The decrease is primarily due to lower revenues as well as higher restructuring charges in connection with the company-wide White Collar Productivity program which negatively impacted

income from operations. In addition changes in foreign currencies, including the impacts from FX/commodity timing differences summarized in the table below, negatively impacted income from operations by 8 percent.

Operational EBITA
The reconciliation of income from operations to Operational EBITA for the Electrification Products division was as follows:

($ in millions)	2016	2015	2014
Income from operations	1,335	1,356	1,562
Acquisition-related amortization	95	100	113
Restructuring and restructuring-related expenses[1]	73	124	49
Non-operational pension cost	3	(3)	(2)
Gains and losses on sale of businesses, acquisition-related expenses and certain non-operational items	8	4	(7)
FX/commodity timing differences in income from operations	14	(20)	24
Operational EBITA	1,528	1,561	1,739

[illegible]

In 2016, Operational EBITA decreased 2 percent (steady when excluding the impacts from changes in foreign currencies) compared to 2015, as declines in Installation Products and Protection and Connection businesses were offset by improvements across all other businesses.

In 2015, Operational EBITA decreased 10 percent (steady when excluding the impacts from changes in foreign currencies) compared to 2014, as declines in Installation Products business were offset by other businesses.

Discrete Automation and Motion

The financial results of our Discrete Automation and Motion division were as follows:

				% Change	
($ in millions)	2016	2015	2014	2016	2015
Orders	8,654	9,222	10,559	(6) %	(13) %
Order backlog at December 31,	4,078	4,232	4,385	(4) %	(3) %
Revenues	8,714	9,127	10,142	(5) %	(10) %
Income from operations	831	991	1,422	(16) %	(30) %
Operational EBITA	1,195	1,295	1,595	(8) %	(19) %

Orders
Orders in 2016 were 6 percent lower (4 percent in local currencies). Strong order intake in the Robotics business and higher orders from light industries, such as the food and beverage industry, were more than offset by lower orders in the Motors and Generators and the Drives and Controls businesses, primarily due to declining orders from the oil and gas sector. Orders in the Power Conversion business were also lower due to a decrease in orders from customers in the solar industry.

Orders in 2015 decreased 13 percent (5 percent in local currencies) due to weaker markets in most of our businesses. Declining oil prices and slower growth in China affected the order intake negatively, especially in the Motors and Generators and the Drives and Controls businesses. Orders in the Robotics business increased in local currencies, supported by strong demand for services. Orders in the Power Conversion business were lower and were impacted by lower large orders from the rail segment.

The geographic distribution of orders for our Discrete Automation and Motion division was as follows:

(in %)	2016	2015	2014
Europe	36	34	39
The Americas	33	35	32
Asia, Middle East and Africa	31	31	29
Total	100	100	100

In 2016, the share of orders in Europe increased mainly due to strong demand in Germany and Finland, respectively driven by the Robotics business and the Drives and Controls business. The share of orders from the Americas decreased mainly due to lower orders in the Motors and Generators business and lower orders in the Drives and Controls business.

In 2015, the geographical distribution of our orders changed primarily due to the impact of the large rail orders from Europe in 2014. In addition, orders from the Americas and Asia, Middle East and Africa benefitted from strong orders in the Robotics business.

Order backlog
Order backlog in 2016 decreased 4 percent. In local currencies, order backlog was flat as lower order backlog in the Drives and Controls business and Motors and Generators business was offset by increases in the backlog for the Robotics and Power Conversion businesses.

Order backlog in 2015 decreased 3 percent (increased 3 percent in local currencies) compared to 2014. In local currencies, order backlog increased as lower order backlog in the Motors and Generators business was offset by increases in the backlog for the Robotics and Power Conversion businesses.

Revenues
In 2016, revenues decreased 5 percent (2 percent in local currencies) due to lower revenues in the Motors and Generators, the Drives and Controls and the Power Conversion businesses. Revenues were higher in the Robotics business as we executed on the strong orders received and the strong order backlog.

In 2015, revenues were 10 percent lower (2 percent in local currencies). Revenues were weaker, as growth in the Robotics and Power Conversion businesses, supported by strong order backlog, was offset by weaker revenues resulting from the lower order intake in the short-cycle businesses such as low voltage motors and drives.

The geographic distribution of revenues for our Discrete Automation and Motion division was as follows:

(in %)	2016	2015	2014
Europe	36	35	37
The Americas	34	35	33
Asia, Middle East and Africa	30	30	30
Total	100	100	100

In 2016, the geographical distribution of revenues was similar to 2015. The share of revenues in Europe slightly increased due to the execution of a strong order backlog, while the share of revenues in the Americas decreased due to lower volume in the solar market. The share of revenues from Asia, Middle East and Africa remained flat as higher revenues in the Robotics business offset the decline in the Drives and Controls and the Motors and Generators businesses.

In 2015, revenues declined in all regions. The share of revenue from Europe was lower than in 2014 due to the weak markets for motors and drives. The share of revenues from the Americas increased, especially due to the revenue development in the Robotics business. As a result the share of revenues from Asia, Middle East and Africa remained flat as higher revenues in the Robotics business somewhat compensated the decline in the Drives and Controls business.

Income from operations
In 2016, income from operations was 16 percent lower compared to 2015 mainly due to the impact of costs recorded for a change in estimated warranty liabilities for certain solar inverters designed and sold by Power-One. During 2016, we recorded $151 million as a charge to cost of sales to recognize a change in the estimated warranty liability for these products, the majority of which were delivered to customers by Power-One prior to the acquisition date in 2013. Of this charge, $131 million related to the products sold by Power-One prior to the acquisition and has been included as an adjustment, in the table below, to determine the segment profit for the division. Additionally, lower revenues and low capacity utilization further reduced the income from operations. Restructuring and restructuring-related expenses in 2016 were lower than 2015. Income from operations benefitted from a strong performance of the Robotics business but was offset by declines in the other businesses. Changes in foreign currencies, including the impacts from FX/commodity timing differences summarized in the table below, negatively impacted income from operations by 2 percent.

In 2015, income from operations decreased 30 percent compared to 2014 due to lower revenues and lower capacity utilization. Steady income in the Robotics business could not compensate for the profit deterioration realized in other businesses. The Drives and Controls business was negatively affected by the weaker business climate in China while the Motors and Generators business suffered from low oil prices and weak demand leading to lower factory utilization. Income from operations in the Power Conversion business was flat despite both continued price erosion and higher warranty costs in the solar business. The division's income from operations was also negatively affected by the impact of the higher restructuring charges incurred in connection with capacity adjustments and the company-wide White Collar Productivity program. Changes in foreign currencies, including the impacts from FX/commodity timing differences summarized in the table below, negatively impacted income from operations by 7 percent.

Operational EBITA
The reconciliation of income from operations to Operational EBITA for the Discrete Automation and Motion division was as follows:

($ in millions)	2016	2015	2014
Income from operations	831	991	1,422
Acquisition-related amortization	120	128	138
Restructuring and restructuring-related expenses[1]	88	125	25
Non-operational pension cost	2	3	6
Changes in pre-acquisition estimates	131	21	—
Gains and losses on sale of businesses, acquisition-related expenses and certain non-operational items	18	26	—
FX/commodity timing differences in income from operations	5	1	4
Operational EBITA	1,195	1,295	1,595

(1) Amounts also include the incremental implementation costs in relation to the White Collar Productivity program

In 2016, Operational EBITA decreased 8 percent (6 percent excluding the impacts from changes in foreign currencies) primarily due to the reasons described under "Income from operations", excluding the explanations related to the reconciling items in the table above.

In 2015, Operational EBITA decreased 20 percent (11 percent excluding the impacts from changes in foreign currencies) compared to 2014, primarily due to the reasons described under "Income from operations", excluding the explanations related to the reconciling items in the table above.

Process Automation

The financial results of our Process Automation division were as follows:

				% Change	
($ in millions)	2016	2015	2014	2016	2015
Orders	5,866	7,347	9,213	(20) %	(20) %
Order backlog at December 31,	5,258	6,036	6,515	(13) %	(7) %
Revenues	6,598	7,224	8,618	(9) %	(16) %
Income from operations	696	685	931	2 %	(26) %
Operational EBITA	824	863	1,045	(5) %	(17) %

Orders

Orders in 2016 declined 20 percent (18 percent in local currencies) compared with the previous year, mainly due to continued low or decreased levels of capital expenditure in both the onshore and offshore oil segments. Orders were lower in most Process Automation businesses, but mainly in the Oil, Gas and Chemicals business, Marine and Ports and Process Industries. The Process Industries business continued to be affected by low commodity prices leading to weak demand from the mining and metals industries, where spending overall, both capital expenditure and operational expenditure, was cut.

Orders in 2015 declined 20 percent (9 percent in local currencies), mainly due to the impacts of a reduction in capital and operating expenditures in the oil and gas sector resulting from continued low oil prices. This negatively impacted the Oil, Gas and Chemicals business. The continued low oil prices adversely impacted the marine sector and in particular the offshore drilling vessels segment. This development negatively impacted the Marine and Ports business. The Process Industries business was also adversely affected as the mining sector remained at a low level as customers in this segment either continued to delay or postpone investments due to low commodity prices.

The geographic distribution of orders for our Process Automation division was as follows:

(in %)	2016	2015	2014
Europe	42	38	34
The Americas	21	22	22
Asia, Middle East and Africa	37	40	44
Total	100	100	100

In 2016, orders declined in all regions. Orders in Europe declined less than other regions, thus increasing the geographic share of orders from Europe. The volume in Europe was supported by orders from marine industries, specifically for specialty vessels like cruise ships and ice-going vessels. The share of orders from the Americas fell slightly with order declines especially in Canada, the U.S. and Chile, where the Process Industries business was affected by low capital expenditure in mining due to low demand from China for raw materials. In the Asia, Middle East and Africa region, orders were lower especially in the Marine and Ports business due to weak demand for oil and gas related vessels and the lack of infrastructure projects from the ports business. In addition, the Oil, Gas and Chemical business as well as the Process Industries business suffered from the lack of large orders in this geographic area.

In 2015, orders declined in all regions. The share of orders from Asia, Middle East and Africa declined due to large orders received from the Marine and Ports business in 2014. In addition, the region was impacted by weak domestic demand in China. Orders in the Americas declined by a lower percentage than the division as a whole, resulting in a steady share of the orders from the Americas. Declines included the impacts of lower mining investments in South America, as well as slowing demand in the U.S. from the upstream oil and gas sector. As most major industrial economies in Europe were either steady or contracting only slightly, the geographic share of orders from Europe increased.

Order backlog

Order backlog at December 31, 2016 was 13 percent lower (10 percent in local currencies) than at December 31, 2015. The lower backlog was a result of the lower order intake during the year and the continued execution from the existing backlog.

Order backlog at December 31, 2015, was 7 percent lower (3 percent higher in local currencies) than at December 31, 2014. Order backlog in most businesses was lower due to the impacts of lower orders during the year. The increase in order backlog in local currencies was due to the receipt of higher large orders near the end of 2015.

Revenues
In 2016, revenues declined 9 percent (6 percent in local currencies) compared with the previous year. The largest decline was in the Process Industries business due to the lower opening order backlog and the continued low level of order activity from the mining and metals sector. A continued lack of orders from the oil and gas industry negatively impacted revenues in the Oil, Gas and Chemicals business. The overall decrease in revenues was mitigated by steady revenues in the Marine and Ports business which was supported by the strong opening order backlog for ice-going and cruise vessels. Revenues were also steady in the Power Generation business due to solid execution from the order backlog. Of the product businesses, Control Technologies had revenue levels similar to the previous year, but the Measurement and Analytics and the Turbocharging businesses were slightly lower due to lower order intake.

In 2015, revenues decreased 16 percent (5 percent in local currencies). Revenues in the Oil, Gas and Chemicals business declined, reflecting the lower opening order backlog as well as reduced opportunities from slower customer order tendering, especially in the service business. The Marine and Ports business also recorded lower revenues, reflecting lower activity in the offshore oil and gas industry and large project delays. The Process Industries business, which includes mining and metals, also declined. Revenues in the Measurement and Analytics business declined, largely due to lower demand in the upstream oil and gas segment. In local currencies, the Turbocharging and the Power Generation businesses were flat while the Control Technologies business had higher revenues.

The geographic distribution of revenues for our Process Automation division was as follows:

(in %)	2016	2015	2014
Europe	37	34	36
The Americas	21	23	23
Asia, Middle East and Africa	42	43	41
Total	100	100	100

In 2016, revenues continued to decline in the Americas and in Asia, Middle East and Africa, while Europe was stable. This resulted in an increase in the share of revenues from Europe. Except for the Marine and Ports business, revenues in the Americas declined in all businesses, especially the Oil, Gas and Chemicals, Process Industries and the product businesses. Revenues in Asia, Middle East and Africa were especially impacted by the weak demand from the Process Industries business, particularly mining.

The regional distribution of revenues in 2015 remained steady compared to 2014 as a downturn in the oil and gas and commodities sectors affected all of the geographies. The share of revenues from Europe declined, reflecting lower oil and gas and marine activities in Norway. Revenues in the Americas decreased proportionally. The larger proportional revenue decrease in Europe and a steady share of revenues in the Americas resulted in a redistribution of the share to Asia, Middle East and Africa.

Income from operations
In 2016, income from operations increased 2 percent compared with 2015, despite decreasing revenues as restructuring charges relating to the ongoing White Collar Productivity program and other restructuring activities were lower. Operating margins were maintained as we reduced overhead costs by removing organizational costs at the local division level and downsizing operations in areas with low order backlog and low market demand. Key actions included closing warehouses and consolidating operations to fewer locations, but mainly included reducing the number of personnel. Restructuring programs were implemented in all businesses due to a continued weak market outlook. Overall, the number of employees in the Process Automation division was reduced by approximately 1,200 during 2016. In addition, changes in foreign currencies, including the impacts from FX/commodity timing differences summarized in the table below, negatively impacted income from operations by 4 percent.

In 2015, income from operations declined 26 percent compared to 2014, mainly from higher restructuring charges due to the implementation of the company-wide White Collar Productivity program as well as the decrease in revenues explained above. Changes in foreign currencies, including the impacts from FX/commodity timing differences summarized in the table below, negatively impacted income from operations by 8 percent.

Operational EBITA

The reconciliation of income from operations to Operational EBITA for the Process Automation division was as follows:

($ in millions)	2016	2015	2014
Income from operations	696	685	931
Acquisition-related amortization	11	12	18
Restructuring and restructuring-related expenses[1]	79	130	36
Non-operational pension cost	2	6	17
Gains and losses on sale of businesses, acquisition-related expenses and certain non-operational items	9	14	32
FX/commodity timing differences in income from operations	27	16	11
Operational EBITA	824	863	1,045

[illegible]

In 2016, Operational EBITA decreased by 5 percent (2 percent excluding the impacts from changes in foreign currencies) compared to 2015, primarily due to the reasons described under "Income from operations", excluding the explanations related to the reconciling items in the table above.

In 2015, Operational EBITA decreased 17 percent (9 percent excluding the impacts from changes in foreign currencies) compared to 2014, primarily due to the reasons described under "Income from operations", excluding the explanations related to the reconciling items in the table above.

Power Grids

The financial results of our Power Grids division were as follows:

				% Change	
($ in millions)	2016	2015	2014	2016	2015
Orders	11,232	12,205	12,768	(8) %	(4) %
Order backlog at December 31,	12,437	12,502	12,619	(1) %	(1) %
Revenues	10,975	11,621	12,518	(6) %	(7) %
Income from operations	888	613	257	45 %	139 %
Operational EBITA	1,021	877	607	16 %	44 %

Orders

In 2016, orders decreased 8 percent (5 percent in local currencies) compared with 2015. The decrease partly reflected a lower level of large orders, which was primarily caused by the timing of order awards. Base orders were also lower, reflecting general macroeconomic uncertainty and sluggishness in some geographic markets such as Saudi Arabia and the U.S. The lower pull-through of orders from other ABB divisions, primarily the Process Automation division, reduced orders by 3 percent. Third-party base orders decreased 3 percent (steady in local currencies) with order growth in the Grid Systems, High Voltage Products and Grid Automation businesses offset by market-driven base order weakness in the Transformers business. Large orders in 2016 included a $640 million UHVDC transmission link in India, two UHVDC orders for China (each worth more than $300 million), and a $250 million high-voltage cable system to connect the Hornsea offshore wind farm in the North Sea to the United Kingdom mainland grid. The general market remains competitive with macroeconomic and geopolitical challenges.

In 2015, orders decreased 4 percent (increased 8 percent in local currencies) compared with 2014. The growth in local currencies mainly resulted from a higher level of large orders. Large orders in the Grid Systems business included an HVDC order awarded to connect the Norwegian and German power grids and a $450 million HVDC order for an interconnection between Norway and the United Kingdom. Large orders were also supported by the continued selective investments in large transmission projects in the U.S. and China. In local currencies, base orders were lower, mainly due to the challenging macroeconomic conditions. The markets remained competitive with continued pricing pressure.

The geographic distribution of orders for our Power Grids division was as follows:

(in %)	2016	2015	2014
Europe	27	37	34
The Americas	27	27	31
Asia, Middle East and Africa	46	36	35
Total	100	100	100

In the Power Grids division, the change in the geographic share of orders often reflects changes in the geographical location of large orders. In 2016, the share of orders from Asia, Middle East and Africa increased from 36 percent to 46 percent, helped by strong order intake in China and India. Although the share of orders from the Americas was steady, orders from the Americas were lower, resulting from market challenges particularly in the U.S. and Brazil. The share of orders from Europe decreased to 27 percent, compared with 37 percent in 2015, mainly due to the high amount of large orders received from Europe in 2015.

In 2015, Europe benefited from a higher level of large orders compared with 2014, supported by the large HVDC awards. The share of orders from Asia, Middle East and Africa increased to 36 percent,

supported by large orders. Orders in the Americas were significantly lower, partly due to a significant large HVDC order received in Canada in 2014.

Order backlog

Order backlog at December 31, 2016, decreased 1 percent (increased 3 percent in local currencies). The local currency increase in order backlog was mainly driven by the Transformers business, resulting from a significantly higher share of large orders with long leadtimes.

Order backlog at December 31, 2015, decreased 1 percent (increased 7 percent in local currencies) compared with December 31, 2014. The local currency increase in order backlog reflects the impact of the high levels of large orders, which typically have execution times stretching over several years.

Revenues

Revenues in 2016 decreased 6 percent (3 percent in local currencies) compared with 2015. The revenue volume in 2016 mainly reflected the scheduled execution of the order backlog. The revenue decrease was mainly attributable to the Grid Systems business as the offshore wind projects which contributed strongly to the revenues in 2015 were either finalized or nearing completion. A lower level of revenues in the Transformers business primarily resulted from order weakness in the U.S. whereas revenues in the Grid Integration business were negatively impacted by the exit from the EPC Solar business and the wind-down of the plant electrification business.

Revenues in 2015 decreased 7 percent (increased 3 percent in local currencies) compared with 2014. The increase in local currencies was mainly driven by steady execution of the order backlog, led by growth in the Grid Systems business, supported by the execution of offshore wind projects. In local currencies, revenues were also higher in the business units Grid Automation, Transformers and High Voltage Products. These positives more than offset a lower level of revenues in the Grid Integration business, which was partly caused by our exit from the EPC Solar business in 2014.

The geographic distribution of revenues for our Power Grids division was as follows:

(in %)	2016	2015	2014
Europe	30	32	34
The Americas	29	30	28
Asia, Middle East and Africa	41	38	38
Total	100	100	100

The regional distribution of revenues partly reflects the geographical end-user markets of the projects executed during the year, and consequently varies over time. In 2016, the share of revenues from Asia, Middle East and Africa increased to 41 percent, supported by significantly higher revenues from the Transformer business in China. The share of revenues from Europe decreased to 30 percent, mainly due to a lower level of revenues from the Grid Systems business, related to lower revenues in the offshore wind projects described above. The share of revenues from the Americas was lower, mainly driven by lower revenue volumes from the U.S. and Brazil.

In 2015, revenues decreased in all regions. In Europe the share of revenues decreased due mainly to lower revenues in the Transformers and High Voltage businesses. The steady execution in the Americas resulted in a proportional increase of revenues from that region, while the revenues in Asia, Middle East and Africa decreased proportionally, mainly due to the Grid Integration business.

Income from operations

In 2016, income from operations increased by $275 million to $888 million compared with $613 million in 2015. The impact from lower revenues was more than offset by a higher gross margin, driven by solid project execution, improved productivity and continued cost savings. Restructuring and restructuring-related expenses in 2016 of $101 million were $59 million lower than in 2015 and included additional charges for the White Collar Productivity program, as well as initiatives to align the cost structure and footprint of certain operations to reflect changing market conditions. We had lower research and development expenses and lower acquisition-related amortization in 2016 compared to 2015. In addition, changes in foreign currencies, including the changes in FX/commodity timing differences in income from operations decreased the division's income from operations by 2 percent compared to 2015.

In 2015, income from operations increased by $356 million to $613 million compared with $257 million in 2014, mainly due to benefits from the ongoing measures taken in the 'step change' program (implemented in the former Power Systems division) and continued cost reduction initiatives. Restructuring-related expenses in 2015 of $160 million were higher than in 2014 and included charges for the new company-wide White Collar Productivity program and ongoing costs for the previously-announced initiatives to align the cost structure of certain operations to reflect changing market conditions. Continued cost savings, primarily related to supply chain management and operational excellence, helped to mitigate higher research and development spending as well as the negative

effects from price pressures. Acquisition-related amortization also decreased in 2015 compared to 2014. In addition, changes in the amount of FX/commodity timing differences in income from operations increased the division's income from operations by $124 million compared to 2014.

Operational EBITA

The reconciliation of income from operations to Operational EBITA for the Power Grids division was as follows:

($ in millions)	2016	2015	2014
Income from operations	888	613	257
Acquisition-related amortization	35	52	89
Restructuring and restructuring-related expenses[1]	101	160	106
Non-operational pension cost	(2)	3	12
Gains and losses on sale of businesses, acquisition-related expenses and certain non-operational items	(2)	39	9
FX/commodity timing differences in income from operations	1	10	134
Operational EBITA	1,021	877	607

In 2016, Operational EBITA increased by 16 percent (19 percent excluding the impacts from changes in foreign currencies) compared to 2015, primarily due to the reasons described under "Income from operations", excluding the explanations related to the reconciling items in the table above.

In 2015, Operational EBITA increased by $270 million. This was primarily driven by the reasons described under "Income from operations", excluding the explanations related to the reconciling items in the table above.

Corporate and Other

Income (loss) from operations for Corporate and Other was as follows:

($ in millions)	2016	2015	2014
Corporate headquarters and stewardship	(380)	(355)	(343)
Corporate research and development	(133)	(144)	(174)
Corporate real estate	47	50	44
White Collar Productivity program costs	(199)	(130)	—
Divested businesses	—	2	547
Misappropriation loss	(73)	—	—
Other	(29)	(32)	(79)
Total Corporate and Other	(767)	(609)	(5)

In 2016, Corporate headquarters and stewardship costs increased due to the launch of the new ABB brand and other costs related to the implementation of the Next Level Strategy program. In 2015, Corporate headquarters and stewardship costs were effectively at the same level of the prior year.

Corporate real estate primarily includes the income from property rentals and gains from the sale of real estate properties. In 2016, 2015 and 2014, income from operations in Corporate real estate included gains of $33 million, $26 million and $17 million, respectively, from the sales of real estate property in various countries.

In 2016, ABB recorded a total of $199 million in "Corporate and Other" for both restructuring and related expenses as well as program implementation costs for the White Collar Productivity program. These costs relate mainly to employee severance costs and both external and internal costs relating to the execution of the program. In 2015, costs incurred in connection to the White Collar Productivity program amounted to $130 million. For further information on the White Collar Productivity program see "Restructuring and other cost savings initiatives" below.

The historical results of operations for certain divested businesses have been presented in "Corporate and Other". In 2014, the amount primarily represents gains recorded on the divestments of these businesses of $543 million.

In 2016, we recorded a loss of $73 million, net of expected insurance recoveries, for the misappropriation of cash by the treasurer of our subsidiary in South Korea.

"Other" consists of operational costs of our Global Treasury Operations, operating income or loss in other non-core businesses and certain other charges such as costs and penalties associated with legal cases, environmental expenses and impairment charges related to investments. In 2016, "Other" included the impact of a reduction in certain insurance-related provisions for self-insured risks offset by amounts recorded for certain pension curtailment costs. In 2015, "Other" declined primarily due to a reduction of insurance-related provisions for self-insured risks. In 2014, "Other" included primarily lower charges in connection with legal compliance cases and lower environmental expenses compared to 2013.

Restructuring and other cost savings initiatives

White Collar Productivity program

In September 2015, we announced a two-year program aimed at making ABB leaner, faster and more customer-focused. Productivity improvements include the rapid expansion and use of regional shared service centers as well as the streamlining of global operations and head office functions, with business units moving closer to their respective key markets. In the course of this program, we are implementing and executing various restructuring initiatives across all operating segments and regions.

The program was originally expected to generate cost savings of approximately $1.0 billion and be realized from 2016 and increasing through the end of 2017. During 2016, we re-assessed the expected amount of cost savings and increased the expected total annual rate of cost savings from the program by 30 percent to approximately $1.3 billion. During 2016, cost savings of approximately $0.6 billion were realized. These savings are primarily being realized as reductions in cost of sales, selling, general and administrative expenses and non-order related research and development expenses.

The following table outlines the costs incurred in 2016, the cumulative amount of costs incurred to date and the total amount of costs expected to be incurred under the program.

	Costs incurred in		Cumulative costs incurred up to December 31,	Total expected
($ in millions)	2016	2015	2016	costs[1]
Electrification Products	14	73	87	89
Discrete Automation and Motion	27	45	72	74
Process Automation	36	96	132	134
Power Grids	33	70	103	105
Corporate and Other	30	86	116	118
Total	140	370	510	520

(1) Total expected costs have been recast to reflect the reorganization of the Company's operating segments as outlined in Note 23.

Total expected program costs were originally estimated to be $852 million. During 2016, the total expected program restructuring costs were reduced by $332 million. This was primarily due to the realization of significantly higher than originally expected attrition and internal re-deployment rates. The reductions were made across all operating divisions as well as for corporate functions. In addition, we reduced the expected average severance costs per person as more precise cost estimates were available after determining the specific country locations of affected employees.

In 2016 and 2015, restructuring costs of $140 million and $370 million, respectively, were recorded based on the anticipated number of personnel to be impacted by the program and a country-specific average severance cost per person. Various functions including marketing and sales, supply chain management, research and development, engineering, service, and certain other support functions were impacted in various phases commencing in 2015 and continuing in 2016.

In 2016, we experienced a significantly higher than expected rate of attrition and re-deployment and a lower than expected severance cost per employee for the employee groups affected by the restructuring programs initiated in 2015 and 2016. As a result, in 2016, we adjusted the amount of our estimated liability for restructuring which was recorded in 2015. This change in estimate of $103 million for the twelve months ended December 31, 2016 resulted in a reduction primarily in cost of sales of $49 million and in selling, general and administrative expenses of $38 million for the twelve months ended December 31, 2016. The expense recorded for the restructuring initiated in 2016 includes the impacts of the attrition and re-deployments realized in 2016. Due to the significant subjectivity of our estimate of future attrition and internal re-deployment rates, the amount reported for restructuring liabilities at December 31, 2016 will change based on actual attrition and re-deployment rates realized in 2017.

To complete the remaining planned restructuring activities, we estimate that additional restructuring costs of approximately $10 million will be recorded in 2017.

The majority of the remaining cash outlays, primarily for employee severance benefits, are expected to occur in 2017. We expect that our cash flow from operating activities will be sufficient to cover any obligations under this restructuring program.

For details of the nature of the costs incurred and their impact on the Consolidated Financial Statements, see "Note 22 Restructuring and related expenses" to our Consolidated Financial Statements.

Other restructuring-related activities and cost savings initiatives

In 2016, 2015 and 2014, we also executed other restructuring-related and cost saving measures to sustainably reduce our costs and protect our profitability. Costs associated with these other measures amounted to $171 million, $256 million and $235 million in 2016, 2015 and 2014, respectively.

Liquidity and capital resources

Principal sources of funding

We meet our liquidity needs principally using cash from operations, proceeds from the issuance of debt instruments (bonds and commercial paper), and short-term bank borrowings.

During 2016, 2015 and 2014, our financial position was strengthened by the positive cash flow from operating activities of $3,843 million, $3,818 million and $3,845 million, respectively.

Our net debt is shown in the table below:

	December 31,	
($ in millions)	2016	2015
Short-term debt and current maturities of long-term debt	1,003	1,454
Long-term debt	5,800	5,985
Cash and equivalents	(3,644)	(4,565)
Marketable securities and short-term investments	(1,953)	(1,633)
Net debt (defined as the sum of the above lines)	1,206	1,241

Net debt at December 31, 2016, decreased $35 million compared to December 31, 2015, as cash flows from operating activities during 2016 of $3,843 million exceeded cash outflows for the payment to our shareholders of the nominal value reduction ($1,610 million), net purchases of property, plant and equipment and intangible assets ($770 million) and amounts paid to purchase treasury stock ($1,299 million). Other significant transactions affecting our liquidity included the issuance of treasury shares for $192 million and payments of dividends to noncontrolling shareholders of $122 million. Movements in foreign exchange rates increased net debt by approximately $50 million. See "Financial Position", "Investing activities" and "Financing activities" for further details.

Our Group Treasury Operations is responsible for providing a range of treasury management services to our group companies, including investing cash in excess of current business requirements. At December 31, 2016 and 2015, the proportion of our aggregate "Cash and equivalents" and "Marketable securities and short-term investments" managed by our Group Treasury Operations amounted to approximately 57 percent and 55 percent, respectively.

Throughout 2016 and 2015, the investment strategy for cash (in excess of current business requirements) has generally been to invest in short-term time deposits with maturities of less than 3 months, supplemented at times by investments in corporate commercial paper, money market funds, and in some cases, government securities. During 2016 and 2015, we also continued to place limited funds in connection with reverse repurchase agreements. We actively monitor credit risk in our investment portfolio and hedging activities. Credit risk exposures are controlled in accordance with policies approved by our senior management to identify, measure, monitor and control credit risks. We closely monitor developments in the credit markets and make appropriate changes to our investment policy as deemed necessary. The rating criteria we require for our counterparts have remained unchanged during 2016 (compared to 2015) as follows: a minimum rating of A/A2 for our

banking counterparts, while the minimum required rating for investments in short-term corporate commercial paper is A-1/P-1. In addition to rating criteria, we have specific investment parameters and approved instruments as well as restrictions on the types of investments we make. These parameters are closely monitored on an ongoing basis and amended as we consider necessary.

Our cash is held in various currencies around the world. Approximately 28 percent of our cash and cash equivalents held at December 31, 2016, was in U.S. dollars, while other significant amounts were held in the Chinese renminbi (22 percent), the euro (approximately 12 percent), the Canadian dollar (approximately 8 percent), the Norwegian krone (7 percent) and the Indian rupee (5 percent).

We believe the cash flows generated from our business, supplemented, when necessary, through access to the capital markets (including short-term commercial paper) and our credit facilities are sufficient to support business operations, capital expenditures, business acquisitions, the payment of dividends to shareholders and contributions to pension plans. Consequently, we believe that our ability to obtain funding from these sources will continue to provide the cash flows necessary to satisfy our working capital and capital expenditure requirements, as well as meet our debt repayments and other financial commitments for the next 12 months. See "Disclosures about contractual obligations and commitments".

Due to the nature of our operations, our cash flow from operations generally tends to be weaker in the first half of the year than in the second half of the year.

Debt and interest rates

Total outstanding debt was as follows:

	December 31,	
($ in millions)	2016	2015
Short-term debt and current maturities of long-term debt	1,003	1,454
Long-term debt		
Bonds	5,653	5,811
Other long-term debt	147	174
Total debt	6,803	7,439

The decrease in short-term debt in 2016 was due to the repayment at maturity of both our USD 600 million 2.5% Notes and our CHF 500 million 1.25% Bonds. This was partially offset by the reclassification of our USD 500 million 1.625% Notes and our AUD 400 million 4.25% Notes, both due in 2017, from long-term to short-term. In addition, we decreased the amount of issued commercial paper ($57 million outstanding at December 31, 2016, compared to $132 million outstanding at December 31, 2015).

Our debt has been obtained in a range of currencies and maturities and on various interest rate terms. For certain of our debt obligations, we use derivatives to manage the fixed interest rate exposure. For example, we use interest rate swaps to effectively convert fixed rate debt into floating rate liabilities. After considering the effects of interest rate swaps, the effective average interest rate on our floating rate long-term debt (including current maturities) of $1,745 million and our fixed rate long-term debt (including current maturities) of $4,923 million was 1.3 percent and 2.9 percent, respectively. This compares with an effective rate of 0.8 percent for floating rate long-term debt of $2,285 million and 3.2 percent for fixed rate long-term debt of $4,876 million at December 31, 2015.

For a discussion of our use of derivatives to modify the interest characteristics of certain of our individual bond issuances, see "Note 12 Debt" to our Consolidated Financial Statements.

Credit facility

During 2016 we exercised our second and final option to extend the maturity of our $2 billion multicurrency revolving credit facility from 2020 to 2021.

No amount was drawn under the credit facility at December 31, 2016 and 2015. The facility is for general corporate purposes. The facility contains cross-default clauses whereby an event of default would occur if we were to default on indebtedness, as defined in the facility, at or above a specified threshold.

The credit facility does not contain financial covenants that would restrict our ability to pay dividends or raise additional funds in the capital markets. For further details of the credit facility, see "Note 12 Debt" to our Consolidated Financial Statements.

Commercial paper

At December 31, 2016, we had two commercial paper programs in place:

- a $2 billion commercial paper program for the private placement of U.S. dollar denominated commercial paper in the United States, and

- a $2 billion Euro-commercial paper program for the issuance of commercial paper in a variety of currencies.

At December 31, 2016, $57 million was outstanding under the $2 billion program in the United States, compared to $132 million outstanding at December 31, 2015.

No amount was outstanding under the $2 billion Euro-commercial paper program at December 31, 2016 and 2015.

European program for the issuance of debt

The European program for the issuance of debt allows the issuance of up to (the equivalent of) $8 billion in certain debt instruments. The terms of the program do not obligate any third-party to extend credit to us and the terms and possibility of issuing any debt under the program are determined with respect to, and as of the date of issuance of, each debt instrument. During 2016, we issued EUR 700 million 0.625% Notes, due 2023, under the program. At December 31, 2016, two bonds (principal amount of EUR 1,250 million, due in 2019, and principal amount of EUR 700 million, due in 2023) having a combined carrying amount of $2,043 million were outstanding under the program. At December 31, 2015, one bond (principal amount of EUR 1,250 million and due in 2019) having a carrying amount of $1,363 million was outstanding under the program. As of March 1, 2017, it was more than 12 months since the program had been updated. New bonds could be issued under the program but could not be listed without us formally updating the program.

Australian program for the issuance of debt

During 2012, we set up a program for the issuance of up to AUD 1 billion (equivalent to $722 million, using December 31, 2016, exchange rates) of medium-term notes and other debt instruments. The terms of the program do not obligate any third-party to extend credit to us and the terms and possibility of issuing any debt under the program are determined with respect to, and as of the date of issuance of, each debt instrument. At both December 31, 2016 and 2015, one bond, having a principal amount of AUD 400 million and maturing in 2017, was outstanding under the program. The carrying amount of the bond at December 31, 2016 and 2015, was $291 million and $297 million, respectively.

Credit ratings

Credit ratings are assessments by the rating agencies of the credit risk associated with ABB and are based on information provided by us or other sources that the rating agencies consider reliable. Higher ratings generally result in lower borrowing costs and increased access to capital markets. Our ratings are of "investment grade" which is defined as Baa3 (or above) from Moody's and BBB- (or above) from Standard & Poor's.

At both December 31, 2016 and 2015, our long-term debt was rated A2 by Moody's and A by Standard & Poor's.

Limitations on transfers of funds

Currency and other local regulatory limitations related to the transfer of funds exist in a number of countries where we operate, including: Algeria, China, Egypt, India, Indonesia, Kazakhstan, Malaysia, Peru, Russian Federation, South Africa, Taiwan, Thailand, Turkey and Viet Nam. Funds, other than regular dividends, fees or loan repayments, cannot be readily transferred offshore from these countries and are therefore deposited and used for working capital needs in those countries. In addition, there are certain countries where, for tax reasons, it is not considered optimal to transfer the cash offshore. As a consequence, these funds are not available within our Group Treasury Operations to meet short-term cash obligations outside the relevant country. The above described funds are reported as cash in our Consolidated Balance Sheets, but we do not consider these funds immediately available for the repayment of debt outside the respective countries where the cash is situated, including those described above. At December 31, 2016 and 2015, the balance of "Cash and equivalents" and "Marketable securities and other short-term investments" under such limitations (either regulatory or sub-optimal from a tax perspective) totaled approximately $1,737 million and $1,402 million, respectively.

During 2016 we continued to direct our subsidiaries in countries with restrictions to place such cash with our core banks or investment grade banks, in order to minimize credit risk on such cash positions. We continue to closely monitor the situation to ensure bank counterparty risks are minimized.

Financial position

Balance sheets

($ in millions)	December 31, 2016	2015	% Change
Current assets			
Cash and equivalents	3,644	4,565	(20) %
Marketable securities and short-term investments	1,953	1,633	20 %
Receivables, net	9,696	10,061	(4) %
Inventories, net	4,347	4,757	(9) %
Prepaid expenses	176	225	(22) %
Deferred taxes	888	881	1 %
Other current assets	688	638	8 %
Assets held for sale	548	—	n.a.
Total current assets	21,940	22,760	(4) %

For a discussion on cash and equivalents, see sections "Liquidity and Capital Resources – Principal sources of funding" and "Cash flows" for further details.

Marketable securities and short-term investments increased in 2016 due primarily to higher amounts deposited with banks with fixed deposit terms over three months partially offset by lower investments in commercial paper (see "Cash flows – Investing activities", below, and "Note 4 Cash and equivalents, marketable securities and short-term investments").

Receivables decreased 4 percent (1 percent in local currencies). The decrease was due partly to lower revenue levels in 2016 compared to 2015 but was mostly offset by the impact of a small increase in days sales outstanding (DSO). The change in DSO was due primarily to the geographic mix of revenues with a higher proportion of revenues coming from locations where there are longer customary payment terms. For details on the components of Receivables, see "Note 7 Receivables, net".

Inventories decreased 9 percent (4 percent in local currencies) primarily due to lower business volumes. In addition, inventory was lower due to positive results from the Company's 1,000-day program focusing on inventory optimization.

($ in millions)	December 31, 2016	2015	% Change
Current liabilities			
Accounts payable, trade	4,446	4,342	2 %
Billings in excess of sales	1,241	1,375	(10) %
Short-term debt and current maturities of long-term debt	1,003	1,454	(31) %
Advances from customers	1,398	1,598	(13) %
Deferred taxes	258	249	4 %
Provisions for warranties	1,142	1,089	5 %
Other provisions	1,765	1,920	(8) %
Other current liabilities	3,936	3,817	3 %
Liabilities held for sale	218	—	n.a.
Total current liabilities	15,407	15,844	(3) %

Accounts Payable increased 6 percent in local currencies due primarily to an increase in the number of days of payables outstanding which was achieved through focused efforts to extend payment terms with suppliers.

Billings in excess of sales decreased 7 percent in local currencies primarily due to the reclassification of amounts to Liabilities held for sale.

The decrease in Short-term debt and current maturities of long-term debt was primarily due to the repayment during the year of the USD 600 million Notes and the CHF 500 million Bonds offset partially by the reclassification to short-term debt of the USD 500 million and AUD 400 million Notes, both due in 2017.

Advances from customers decreased 10 percent in local currencies due to the impacts of lower orders, especially from the larger orders for capital expenditures from the oil and gas sector. In addition, market conditions have placed pressure on contract payment terms, reducing the amount of advances we have received.

Provisions for warranties increased 9 percent in local currencies due primarily to an increase in the warranty liability in the solar business of the Discrete Automation and Motion division. This increase was required to cover costs associated with higher than expected product failure rates of certain solar inverters manufactured by Power-One and sold to customers primarily before being acquired by the Company in 2013.

The decrease in Other provisions (5 percent in local currencies) was primarily due a reduction in the liability for self-insurance and lower provisions for

contract losses as the large offshore wind projects are completed.

($ in millions)	December 31, 2016	2015	% Change
Non-current assets			
Property, plant and equipment, net	4,743	5,276	(10) %
Goodwill	9,501	9,671	(2) %
Other intangible assets, net	1,996	2,337	(15) %
Prepaid pension and other employee benefits	90	68	32 %
Investments in equity-accounted companies	170	178	(4) %
Deferred taxes	527	423	25 %
Other non-current assets	532	643	(17) %
Total non-current assets	17,559	18,596	(6) %

In 2016, Property, plant and equipment, net, decreased 7 percent in local currencies due primarily to the reclassification of amounts to Assets held for sale.

Other intangible assets decreased primarily due to the amortization during the year. For additional information on intangible assets see "Note 11 Goodwill and other intangible assets" to our Consolidated Financial Statements.

($ in millions)	December 31, 2016	2015	% Change
Non-current liabilities			
Long-term debt	5,800	5,985	(3) %
Pension and other employee benefits	1,834	1,924	(5) %
Deferred taxes	957	965	(1) %
Other non-current liabilities	1,604	1,650	(3) %
Total non-current liabilities	10,195	10,524	(3) %

Long-term debt decreased 3 percent of which 2 percentage points were due to movements in foreign exchange rates. The remaining change was due primarily to the issue of the EUR 700 million Notes in May 2016, offset by the reclassification to current of the USD 500 million Notes and the AUD 400 million Notes. See "Liquidity and Capital Resources – Debt and interest rates" for information on long-term debt.

The decrease in Pension and other employee benefits was primarily due to foreign exchange rate movement. For additional information, see "Note 17 Employee benefits" to our Consolidated Financial Statements.

For a breakdown of other noncurrent liabilities, see "Note 13 Other provisions, other current liabilities and other non-current liabilities" to our Consolidated Financial Statements.

Cash flows

In the Consolidated Statements of Cash Flows, the effects of discontinued operations are not segregated.

The Consolidated Statements of Cash Flows can be summarized as follows:

($ in millions)	2016	2015	2014
Net cash provided by operating activities	3,843	3,818	3,845
Net cash used in investing activities	(1,305)	(974)	(1,121)
Net cash used in financing activities	(3,355)	(3,380)	(3,024)
Effects of exchange rate changes on cash and equivalents	(104)	(342)	(278)
Net change in cash and equivalents – continuing operations	(921)	(878)	(578)

Operating activities

($ in millions)	2016	2015	2014
Net income	2,034	2,055	2,718
Depreciation and amortization	1,135	1,160	1,305
Total adjustments to reconcile net income to net cash provided by operating activities (excluding depreciation and amortization)	1	(55)	(200)
Total changes in operating assets and liabilities	673	658	22
Net cash provided by operating activities	3,843	3,818	3,845

Operating activities in 2016 provided net cash of $3,843 million, an increase from 2015 of 1 percent as Net income was steady and net working capital improvements continued to contribute to positive cash flows. Net working capital management improvements included a reduction of inventories and a significant increase in trade payables, resulting from focused efforts to extend payment terms with suppliers. The timing of income tax payments also improved cash provided by operating activities. These benefits were offset by impacts from lower advances from customers. In addition, cash flows from operating activities was negatively impacted by the misappropriation of $103 million in cash by the treasurer of our subsidiary in South Korea.

Operating activities in 2015 provided net cash of $3,818 million, a decrease from 2014 of 1 percent. The decrease was driven by lower net income, partly offset by improvements in net working capital. Provisions, net, increased by $330 million reflecting the timing differences for cash payments on restructuring programs. Although net income in 2015 included restructuring and related expenses of $370 million in relation to the White Collar Productivity program, cash payments during 2015

amounted to $35 million. Net working capital also improved due to stronger collections from customers as we decreased our trade receivables but also increased our advances from customers and billings in excess of sales. Improvements in inventory were offset by similar reductions in trade payables.

Investing activities

($ in millions)	2016	2015	2014
Purchases of marketable securities (available-for-sale)	(1,214)	(1,925)	(1,430)
Purchases of short-term investments	(3,092)	(614)	(1,465)
Purchases of property, plant and equipment and intangible assets	(831)	(876)	(1,026)
Acquisition of businesses (net of cash acquired) and increases in cost- and equity-accounted companies	(26)	(56)	(70)
Proceeds from sales of marketable securities (available-for-sale)	1,057	434	361
Proceeds from maturity of marketable securities (available-for-sale)	539	1,022	523
Proceeds from short-term investments	2,241	653	1,011
Proceeds from sales of property, plant and equipment	61	68	33
Proceeds from sales of businesses (net of transaction costs and cash disposed) and cost- and equity-accounted companies	(1)	69	1,110
Net cash from settlement of foreign currency derivatives	(57)	231	(179)
Other investing activities	18	20	11
Net cash used in investing activities	(1,305)	(974)	(1,121)

Net cash used in investing activities in 2016 was $1,305 million, compared to $974 million in 2015. The change was primarily due to the change in the cash impacts from derivative cash flows classified as investing activities as in 2016 we had net outflows of $57 million, compared to inflows of $231 million in 2015, on settlement of foreign currency derivatives relating to investing activities. These cash flows primarily result from the maturity and settlement of derivatives in place to hedge foreign currency exposures on internal subsidiary funding and the amount of the settlement results from movements in foreign currency exchange rates throughout the year.

Net cash used in investing activities in 2015 was $974 million, compared to $1,121 million in 2014. Significantly lower proceeds from sales of businesses were partially offset by a reduction in the net amount invested in marketable securities and other short-term investments as well as lower purchases of property, plant and equipment and intangible assets. Net cash used in investing activities was also lower in 2015 compared to 2014 as we received $231 million in net cash on settlement of foreign currency derivatives relating to investing activities compared with net cash outflows in 2014 of $179 million.

Total cash disbursements for the purchase of property, plant and equipment and intangibles were lower in 2016 compared to 2015 and lower in 2015 compared to 2014, primarily due to movements in foreign exchange rates and an increase in the amount of unpaid purchases. In 2016, total purchases of $831 million included $595 million for construction in process (generally for construction of buildings and other property facilities), $168 million for the purchase of machinery and equipment, $28 million for the purchase of land and buildings, and $40 million for the purchase of intangible assets. In 2015, total purchases of $876 million included $568 million for construction in process (generally for construction of buildings and other property facilities), $200 million for the purchase of machinery and equipment, $50 million for the purchase of land and buildings, and $58 million for the purchase of intangible assets. In 2014, total purchases of $1,026 million included $724 million for construction in progress, $188 million for the purchase of machinery and equipment, $38 million for the purchase of land and buildings, and $76 million for the purchase of intangible assets.

In 2016 and 2015, we continued to increase the amount of our excess liquidity invested in marketable securities and short-term investments. Amounts at December 31, 2016, were placed primarily in fixed-term deposits with banks and in short-term money market funds. At December 31, 2015, amounts were placed primarily in short-term money market funds and corporate commercial paper. The increase in investments during 2016, 2015 and 2014, resulted in a net outflow of $469 million, $430 million and $1,000 million, respectively.

In 2016 and 2015, there were no significant acquisitions or divestments of businesses. During 2014, we received net pre-tax proceeds from sales of businesses and cost- and equity-accounted companies of $1,110 million, primarily from the divestment of the Full Service business, the Steel Structures business of Thomas & Betts, the HVAC business of Thomas & Betts and the Power Solutions business of Power-One.

Financing activities

($ in millions)	2016	2015	2014
Net changes in debt with maturities of 90 days or less	(152)	3	(103)
Increase in debt	912	68	150
Repayment of debt	(1,249)	(101)	(90)
Delivery of shares	192	107	38
Purchase of treasury stock	(1,299)	(1,487)	(1,003)
Dividends paid	—	(1,357)	(1,841)
Reduction in nominal value of common shares paid to shareholders	(1,610)	(392)	—
Dividends paid to noncontrolling shareholders	(122)	(137)	(132)
Other financing activities	(27)	(84)	(43)
Net cash used in financing activities	(3,355)	(3,380)	(3,024)

Our financing activities primarily include debt transactions (both from the issuance of debt securities and borrowings directly from banks), share transactions and payments of distributions to controlling and noncontrolling shareholders.

In 2016, the net cash outflow for debt with maturities of 90 days or less related primarily to reduction of $75 million in the amount outstanding under our commercial paper program in the U.S. and net repayments of short-term borrowings in various countries. In 2014, the net cash outflow for debt with maturities of 90 days or less related primarily to repayments made of borrowings in various countries offset by a small increase in the amount outstanding under our commercial paper program in the U.S.

In 2016, the increase in debt was due primarily to the issuance of our EUR 700 million 0.625% Notes due 2023 (equal to $807 million at date of issuance). In 2015 and 2014, increases in other debt included cash flows from additional borrowings in various countries.

During 2016, $1,249 million of debt was repaid, reflecting primarily the repayment at maturity of the USD 600 million 2.5% Notes and CHF 500 million 1.25% Bonds (in total equivalent to $1,106 million at dates of repayment). In 2015 and 2014 repayment of debt reflects repayments of borrowings in various countries.

In 2016 and 2015, "Purchase of treasury stock" reflects the cash paid to purchase 65 million and 73 million, respectively, of our own shares in connection with the share buyback program announced in September 2014. In 2014, the amount reflects cash paid to acquire 45 million of our own shares of which 33 million shares were purchased in connection with the share buyback program. For additional information on the share buyback program see "Note 19 Stockholders' equity" to our Consolidated Financial Statements.

Disclosures about contractual obligations and commitments

The contractual obligations presented in the table below represent our estimates of future payments under fixed contractual obligations and commitments. The amounts in the table may differ from those reported in our Consolidated Balance Sheet at December 31, 2016. Changes in our business needs, cancellation provisions and changes in interest rates, as well as actions by third parties and other factors, may cause these estimates to change. Therefore, our actual payments in future periods may vary from those presented in the table. The following table summarizes certain of our contractual obligations and principal and interest payments under our debt instruments, leases and purchase obligations at December 31, 2016.

($ in millions)	Total	Less than 1 year	1–3 years	3–5 years	More than 5 years
Payments due by period					
Long-term debt obligations	6,534	843	1,700	1,255	2,736
Interest payments related to long-term debt obligations	1,446	195	320	231	700
Operating lease obligations	1,548	382	552	371	243
Capital lease obligations[1]	177	30	48	31	68
Purchase obligations	4,553	3,730	710	99	14
Total	14,258	5,180	3,330	1,987	3,761

In the table above, the long-term debt obligations reflect the cash amounts to be repaid upon maturity of those debt obligations. The cash obligations above will differ from the long-term debt balance reflected in "Note 12 Debt" to our Consolidated Financial Statements due to the impacts of fair value hedge accounting adjustments and premiums or discounts on certain debt. In addition, capital lease obligations are shown separately in the table above while they are combined with Long-term debt amounts in our Consolidated Balance Sheets.

We have determined the interest payments related to long-term debt obligations by reference to the payments due under the terms of our debt obligations at the time such obligations were

incurred. However, we use interest rate swaps to modify the interest characteristics of certain of our debt obligations. The net effect of these swaps may be to increase or decrease the actual amount of our cash interest payment obligations, which may differ from those stated in the above table. For further details on our debt obligations and the related hedges, see "Note 12 Debt" to our Consolidated Financial Statements.

Of the total of $921 million unrecognized tax benefits (net of deferred tax assets) at December 31, 2016, it is expected that $9 million will be paid within less than a year. However, we cannot make a reasonably reliable estimate as to the related future payments for the remaining amount.

Off balance sheet arrangements

Commercial commitments
We disclose the maximum potential exposure of certain guarantees, as well as possible recourse provisions that may allow us to recover from third-parties amounts paid out under such guarantees.The maximum potential exposure does not allow any discounting of our assessment of actual exposure under the guarantees. The information below reflects our maximum potential exposure under the guarantees, which is higher than our assessment of the expected exposure.

Guarantees
The following table provides quantitative data regarding our third-party guarantees. The maximum potential payments represent a worst-case scenario, and do not reflect our expected outcomes.

December 31, ($ in millions)	Maximum potential payments 2016	2015
Performance guarantees	193	209
Financial guarantees	69	77
Indemnification guarantees	71	50
Total	333	336

The carrying amounts of liabilities recorded in the Consolidated Balance Sheets in respect of the above guarantees were not significant at December 31, 2016 and 2015, and reflect our best estimate of future payments, which we may incur as part of fulfilling our guarantee obligations.

In addition, in the normal course of bidding for and executing certain projects, we have entered into standby letters of credit, bid/performance bonds and surety bonds (collectively "performance bonds") with various financial institutions. Customers can draw on such performance bonds in the event that the Company does not fulfill its contractual obligations. ABB would then have an obligation to reimburse the financial institution for amounts paid under the performance bonds. At December 31, 2016 and 2015, the total outstanding performance bonds aggregated to $7.9 billion and $9.5 billion, respectively. There have been no significant amounts reimbursed to financial institutions under these types of arrangements in 2016, 2015 and 2014.

For additional descriptions of our performance, financial and indemnification guarantees see "Note 15 Commitments and contingencies" to our Consolidated Financial Statements.

Consolidated Financial Statements of ABB Group

Report of management on internal control over financial reporting

The Board of Directors and management of ABB Ltd and its consolidated subsidiaries ("ABB") are responsible for establishing and maintaining adequate internal control over financial reporting.

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 ABB's policies and procedures may deteriorate.

Management conducted an assessment of the effectiveness of internal control over financial reporting as of December 31, 2016. In making this assessment, management used the criteria established in Internal Control – Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework).

A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of the company's financial statements will not be prevented or detected on a timely basis. ABB did not maintain adequate segregation of duties in the treasury function in its South Korean subsidiary and failed to identify certain inappropriate access levels to the local enterprise resource planning (ERP) system. In addition, ABB failed to safeguard physical access to the signature seals of the subsidiary in South Korea and prevent the Company from being bound to unauthorized financial contracts, resulting in undetected financial obligations. ABB also failed to provide adequate management oversight and review of the local treasury activities. As a result, ABB did not maintain effective controls over the safeguarding of cash and other treasury activities, including controls relating to entering into financial contracts. Management has concluded that these deficiencies in the operation of ABB's internal controls constituted a material weakness.

Based on this evaluation, management has concluded that, as a result of the material weakness described above, ABB's internal control over financial reporting was not effective as of December 31, 2016.

Ernst & Young AG, the independent registered public accounting firm who audited the Company's consolidated financial statements, has issued an opinion on the effectiveness of ABB's internal control over financial reporting as of December 31, 2016, which is included on pages 142–143 of this Annual Report.

Ulrich Spiesshofer
Chief Executive Officer

Eric Elzvik
Chief Financial Officer

Zurich, March 10, 2017

Report on the Audit of the Consolidated Financial Statements

To the General Meeting of ABB Ltd, Zurich

As statutory auditor, we have audited the consolidated financial statements of ABB Ltd, which comprise the consolidated balance sheets as of December 31, 2016 and 2015, and the related consolidated statements of income, comprehensive income, cash flows and changes in stockholders' equity, and notes thereto (pages 144–205), for each of the three years in the period ended December 31, 2016.

Board of Directors' Responsibility
The Board of Directors is responsible for the preparation of these consolidated financial statements in accordance with U.S. generally accepted accounting principles and the requirements of Swiss law. This responsibility includes designing, implementing and maintaining an internal control system relevant to the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error. The Board of Directors is further responsible for selecting and applying appropriate accounting policies and making accounting estimates that are reasonable in the circumstances.

Auditor's Responsibility
Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We conducted our audits in accordance with Swiss law, Swiss Auditing Standards and the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance whether the consolidated financial statements are free of material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the consolidated financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers the internal control system relevant to the entity's preparation of the consolidated financial statements in order to design audit procedures that are appropriate in the circumstances. An audit also includes evaluating the appropriateness of the accounting policies used and the reasonableness of accounting estimates made, as well as evaluating the overall presentation of the consolidated financial statements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion
In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the consolidated financial position of ABB Ltd as of December 31, 2016 and 2015, and the consolidated results of its operations and its cash flows for each of the three years in the period ended December 31, 2016, in accordance with U.S generally accepted accounting principles and comply with Swiss law.

Report on Key Audit Matters based on the circular 1/2015 of the Federal Audit Oversight Authority

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the consolidated financial statements of the current period. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters. For each matter below, our description of how our audit addressed the matter is provided in that context.

We have fulfilled the responsibilities described in the Auditor's responsibility section of our report, including in relation to these matters. Accordingly, our audit included the performance of procedures designed to respond to our assessment of the risks of material misstatement of the consolidated financial statements. The results of our audit procedures, including the procedures performed to address the matters below, provide the basis for our audit opinion on the accompanying consolidated financial statements.

Revenue recognition on long-term projects

Risk

The Company derives a significant portion of its revenues from long-term and fixed price projects. Such contracts involve key project milestones and financial milestones including the bid price, risk contingencies, the execution, post-completion warranty obligations and ongoing uncertainties around expected costs to complete. Therefore, the revenue, cost and gross profit realization can vary substantially during the execution and reassessment of these projects against the contracted financial milestones.

The principal risks include:

- the potential manipulation of results to achieve performance targets through management's use of estimates and judgments in relation to such projects;
- inappropriate or incorrect accounting for percentage of completion, variation orders, expected costs to complete, estimated project margin and risk contingencies; and
- unrecorded liabilities for warranties, contractual disputes or claims for liquidated damages.

We consider these the key judgmental areas impacting the recognition of revenue and margins in respect of long-term contracts.

See note 2 to these consolidated financial statements for ABB's description of the accounting policy for Revenue Recognition.

Our audit response

We obtained an understanding of the process for how management determines the percentage of completion, evaluated the design of, and performed tests of controls in this area. We evaluated the judgments made by management regarding the expected costs to complete estimate, the timing and recognition of variation orders, and the assumptions made in calculating warranty provisions with underlying data.

We evaluated management's assessments around the potential for liquidated damages for projects behind contracted schedule and the contingency provisions to mitigate contract-specific financial risks. For those balances subject to claims, we made inquiries of external and internal legal counsel.

We also assessed whether management's policies and processes for making these estimates continue to be applied consistently to all contracts of a similar nature.

Legal and Compliance

Risk

The illegal behavior by any employee or agent that has and may in the future violate the US Foreign Corrupt Practices Act of 1977, OECD (Organisation for Economic Co-operation and Development) legislation, anti-trust laws and other applicable laws and regulations may significantly impact the Company's reputation, its ability to do business in certain jurisdictions and/or with certain counterparties or may result in significant fines or civil claims.

Determining the impact and likely outcome of any litigation matter requires significant judgment. Therefore, estimating litigation reserves and contingent liabilities can involve highly judgmental estimates.

The principal risks include:

- the judgments involved in determining the likely outcome of legal cases, disputes or investigations results in a risk that those legal provisions may be incorrect; and
- failure to provide on a timely basis for claims due to lack of understanding or awareness of the claim.

See note 15 to these consolidated financial statements for ABB's descrition of Contingencies – Regulatory, Compliance and Legal.

Our audit response

We assessed judgments and accounting conclusions made by management arising from violation of legislation, anti-trust laws and other regulatory risks.

Our procedures included an evaluation of management's calculations and the related underlying assumptions to verify that the relevant risks are reflected in the provisions.

Our procedures included discussions with internal legal counsel, and we also obtained and considered legal letters from external legal counsel and other supporting documentation.

Tax contingency reserves

Risk

The Company operates in multiple jurisdictions and is therefore exposed to numerous tax laws around the world. Risk provisions are held where it is probable that a liability will materialize either in relation to previous planning strategies or a tax position taken in relation to submitted returns subject to tax audit. The amount of such a provision and whether it is probable that it will materialize are both considered to be significant judgmental areas.

Given the volume and complexity of intracompany transactions, including management fee recharges, transfer pricing is an area of complexity and judgment that is closely managed by ABB and

certain provisions are recorded to reflect areas of uncertainty. These matters have come under renewed focus with the current Base Erosion and Profit Shifting project of the OECD.

The principal risks include:
- significant judgments involved in determining the provision for tax liabilities that can result in misstatement of provisions; and
- there are ranges of possible transfer prices, therefore there is a risk of challenge by the tax authorities, particularly with the increased focus on tax and multinational businesses.

See note 16 to these consolidated financial statements for ABB's description of Taxes.

Our audit response
We assessed tax exposures estimated by management and the risk analysis associated with these exposures along with claims or assessments made by tax authorities to date. We verified the components of the tax risk provision to ensure they reflect the tax risks in the business and evaluated the provisions.

We also reviewed documentation in relation to tax audits to ensure that any exposures the tax authorities are raising have been considered and provided for where necessary.

We reviewed, with the involvement of transfer pricing specialists, the significant transfer pricing policies applied by ABB including the related supporting documentation, and ensured that the tax risk provision included such risks.

Goodwill impairment
Risk
The Company reviews the carrying amount of its reporting units annually or more frequently if impairment indicators are present. The impairment assessment involves a comparison of the estimated fair value of each reporting unit to its carrying amount. This annual impairment test was significant to our audit because the balance of USD 9,501 million as of December 31, 2016 is significant to the financial statements representing 24% of the total assets. In addition, we note that management's assessment process is assumption based, complex and subject to highly judgmental estimates.

The principal risks include:
- the incorrect determination of the reporting units and subsequent allocation of goodwill used for impairment assessments;
- inaccurate models are used to calculate the fair value of the reporting units; and
- the assumptions to support goodwill values (e.g. discount rates and growth rates) are inappropriate such as projected financial information, which are affected by expected future market or economic conditions.

See note 11 to these consolidated financial statements for ABB's description of Goodwill and other intangible assets.

Our audit response
Our procedures included a review of the valuations prepared by management and related supporting third-party evidence for the fair values of each goodwill reporting unit. We performed audit procedures on the integrity of the models and the definition of the goodwill reporting units.

We involved valuation specialists to support our evaluation of the assumptions used in respect of the forecast growth rates and discount rates. Our evaluation included a comparison to economic and industry forecasts.

We compared the forecasts used in generating the fair value to current business environment, and evaluated management's assumptions underpinning the forecasts.

We reviewed the forecasts by stress testing key assumptions, assessing the impact on the sensitivity analysis, and understanding the degree to which assumptions would need to move before impairment would be triggered.

Warranty provision
Risk
During 2016, the Company determined that the provision for warranties in its solar business, acquired in 2013 as part of the purchase of Power-One, was no longer sufficient to cover expected warranty costs over the remaining warranty period. Due to higher than originally expected product failure rates for certain solar inverters designed and manufactured by Power-One, the Company reassessed its model to determine the expected costs to cover future warranty claims.

The principal risks include:
- significant judgments involved in determining the amount of the warranty provision; and
- precision of the inputs and model used to calculate warranty provisions.

See note 15 to these consolidated financial statements for ABB's description of Product and order-related contingencies.

Our audit response

We obtained an understanding of the process to determine the amount of solar inverter warranty provisions. Our audit procedures included evaluating management's methodology by understanding the basis for the assumptions developed and used in the calculation of the warranty provisions.

We also evaluated the validity of the data used for the calculations within the model.

Our procedures further included discussions with internal and external experts in regards to the reasonableness of the assumptions used.

White Collar Productivity restructuring provision

Risk

On September 9, 2015, the Company publically announced a significant restructuring program, in an effort to reduce costs under the White Collar Productivity ("WCP") 1,000-day program. As part of the WCP program, ABB committed to reduce headcount globally across all divisions and in most countries where ABB operates and will provide postemployment benefits to the impacted employees. At December 31, 2016 the Company has an outstanding provision of USD 334 million related to this program. The restructuring provisions are material to the financial statements and the recognition criteria and measurement depends upon local country facts and circumstances.

The principal risks include:

- the judgments involved in the determination of the assumptions used, such as the number of individuals affected and the related severance costs, to determining the required WCP related restructuring provision; and
- failure to recognize WCP restructuring provision and reversals timely.

See note 22 to these consolidated financial statements for ABB's description on Restructuring and related expenses.

Our audit response

We assessed the process, controls and the resulting WCP provisions estimated by management as part of our year-end audit.

For the locations with material WCP expenses and accruals, we obtained related supporting documentation to evaluate the criteria to record the WCP provision pursuant to ASC 712 or ASC 420, which ever applicable, were met.

We reviewed the documentation related to the provision expenses recorded in 2016 and the completeness and the valuation of the provision balance as of December 31, 2016. This included an evaluation of the estimated future severance payments that will be paid to employees terminated under the WCP program and the change in estimate recorded.

We evaluated the presentation of the WCP expenses and accruals, ensuring these were recorded within the appropriate balance sheet and income statement line items, respectively.

We reviewed the restructuring disclosures, which includes the WCP provision, and ensured all required disclosures were made.

Illegal act in South Korea

Risk

In February 2017, ABB uncovered criminal activity in its South Korean subsidiary that is an adjusting subsequent event for the financial statements as of December 31, 2016. The Company disclosed these irregularities and the initial results on February 22, 2017. The Company immediately launched an investigation in South Korea led by ABB and involving independent forensic and legal specialists. These criminal activities impacted the Company's net income by USD 64 million, net of probable insurance recoveries and income taxes as of December 31, 2016.

See section "Other income (expense), net" in the Company's analysis of results of operations within the Financial Review of ABB Group in the Company's annual report.

Our audit response

Once we become aware of this, we revisited our audit approach. Our audit procedures included, amongst others, understanding the nature of the criminal act, the circumstances in which the acts occurred, and understanding of other relevant information to evaluate the impact on the financial statements. We shadowed the ABB investigation with the support of EY forensic specialists and discussed on a number of occasions the investigation with management and the Finance, Audit and Compliance Committee (FACC) to evaluate the approach and the corresponding findings, financial and disclosure consequences and impact on internal controls.

We further assessed the impact of these criminal acts to our overall audit strategy and the appropriateness of the planned and executed audit procedures. Based on this re-assessment, we performed additional control testing around cash and the treasury function and expanded our cash confirmation audit procedures, as well as the procedures for outstanding loans and account receivables factoring arrangements in South Korea.

We finally assessed the Company's financial statement presentation and disclosures.

Report on other legal requirements

We confirm that we meet the legal requirements on licensing according to the Auditor Oversight Act (AOA) and independence (article 728 CO and article 11 AOA) and that there are no circumstances incompatible with our independence.

In the course of our audit performed in accordance with article 728a para. 1 item 3 CO and Swiss Auditing Standard 890, we noted that an internal control system for the preparation of the financial statements was adequately designed and documented according to the instructions of the Board of Directors. However, segregation of duties, inappropriate access to the local ERP system of the treasury function in the South Korean subsidiary, safeguarding access to the signature seals to avoid unauthorized financial contracts, and adequate management oversight and review of the local treasury activities, all significant processes for the South Korean entity, were not performed in all material respects.

In our opinion, except for the matter described in the preceding paragraph, an internal control system for the preparation of consolidated financial statements, designed in accordance with the instructions of the Board of Directors, exists.

We recommend that the consolidated financial statements submitted to you be approved.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), ABB Ltd's internal control over financial reporting as of December 31, 2016, based on criteria established in Internal Control – Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (COSO), and our report dated March 10, 2017 expressed an adverse opinion on the effectiveness of ABB Ltd's internal control over financial reporting.

Ernst & Young AG

Leslie Clifford
Licensed audit expert
(Auditor in charge)

Robin Errico
Licensed audit expert

Zurich, Switzerland
March 10, 2017

Report of the Independent Auditor on internal control over financial reporting

To the Board of Directors and Stockholders of ABB Ltd

We have audited ABB Ltd's internal control over financial reporting as of December 31, 2016, based on criteria established in Internal Control – Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (the COSO criteria). ABB Ltd's Board of Directors and management are responsible for maintaining effective internal control over financial reporting, and management is responsible for its assessment of the effectiveness of internal control over financial reporting included in the accompanying Report of management on internal control over financial reporting. Our responsibility is to express an opinion on the company's internal control over financial reporting based on our audit.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

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 (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) 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 (3) 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.

A material weakness is a deficiency, or combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of the company's annual financial statements will not be prevented or detected on a timely basis. The following material weakness has been identified and included in management's assessment. Management has identified a material weakness in internal control in the treasury function in the South Korean subsidiary related to inadequate segregation of duties and inappropriate access levels to the local enterprise resource planning (ERP) system. Further, they failed to safeguard physical access to the signature seals and prevent the Company from being bound to unauthorized financial contracts, resulting in undetected financial obligations. Management also failed to provide adequate management oversight and review of the local treasury activities. We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the consolidated balance sheets of ABB Ltd as of December 31, 2016 and 2015, and the related consolidated statements of income, comprehensive income, cash flows and changes in stockholders' equity for each of the three years in the period ended December 31, 2016. This material

weakness was considered in determining the nature, timing and extent of audit tests applied in our audit of the 2016 financial statements.

In our opinion, because of the effect of the material weakness described above on the achievement of the objectives of the control criteria, ABB Ltd has not maintained effective internal control over financial reporting as of December 31, 2016, based on the COSO criteria.

We also have audited in accordance with Swiss law, Swiss auditing Standards and the standards of the Public Company Accounting Oversight Board (United States), the 2016 consolidated financial statements of ABB Ltd and our report dated March 10, 2017, expressed an unqualified opinion thereon.

Ernst & Young AG

Leslie Clifford
Licensed audit expert
(Auditor in charge)

Robin Errico
Licensed audit expert

Zurich, Switzerland
March 10, 2017

Consolidated Income Statements

Year ended December 31 ($ in millions, except per share data in $)	2016	2015	2014
Sales of products	27,816	29,477	33,279
Sales of services and software	6,012	6,004	6,551
Total revenues	**33,828**	**35,481**	**39,830**
Cost of sales of products	(20,431)	(21,694)	(24,506)
Cost of services and software	(3,650)	(3,653)	(4,109)
Total cost of sales	**(24,081)**	**(25,347)**	**(28,615)**
Gross profit	**9,747**	**10,134**	**11,215**
Selling, general and administrative expenses	(5,349)	(5,574)	(6,067)
Non-order related research and development expenses	(1,300)	(1,406)	(1,499)
Other income (expense), net	(111)	(105)	529
Income from operations	**2,987**	**3,049**	**4,178**
Interest and dividend income	73	77	80
Interest and other finance expense	(261)	(286)	(362)
Income from continuing operations before taxes	**2,799**	**2,840**	**3,896**
Provision for taxes	(781)	(788)	(1,202)
Income from continuing operations, net of tax	**2,018**	**2,052**	**2,694**
Income from discontinued operations, net of tax	16	3	24
Net income	**2,034**	**2,055**	**2,718**
Net income attributable to noncontrolling interests	(135)	(122)	(124)
Net income attributable to ABB	**1,899**	**1,933**	**2,594**
Amounts attributable to ABB shareholders:			
Income from continuing operations, net of tax	1,883	1,930	2,570
Net income	1,899	1,933	2,594
Basic earnings per share attributable to ABB shareholders			
Income from continuing operations, net of tax	0.88	0.87	1.12
Net income	0.88	0.87	1.13
Diluted earnings per share attributable to ABB shareholders:			
Income from continuing operations, net of tax	0.87	0.87	1.12
Net income	0.88	0.87	1.13
Weighted-average number of shares outstanding (in millions) used to compute:			
Basic earnings per share attributable to ABB shareholders	2,151	2,226	2,288
Diluted earnings per share attributable to ABB shareholders	2,154	2,230	2,295

See accompanying Notes to the Consolidated Financial Statements

Consolidated Statements of Comprehensive Income

Year ended December 31 ($ in millions)	2016	2015	2014
Net income	2,034	2,055	2,718
Other comprehensive income (loss), net of tax:			
Foreign currency translation adjustments	(474)	(1,058)	(1,680)
Available-for-sale securities:			
Net unrealized gains (losses) arising during the year	—	(7)	(9)
Reclassification adjustments for net (gains) losses included in net income	—	1	15
Unrealized gains (losses) on available-for-sale securities	—	(6)	6
Pension and other postretirement plans:			
Prior service (costs) credits arising during the year	(40)	88	(3)
Net actuarial gains (losses) arising during the year	44	210	(614)
Amortization of prior service cost included in net income	26	26	17
Amortization of net actuarial loss included in net income	62	82	81
Net losses from pension settlements included in net income	26	9	(2)
Pension and other postretirement plan adjustments	118	415	(521)
Cash flow hedge derivatives:			
Net unrealized gains (losses) arising during the year	16	(20)	(52)
Reclassification adjustments for net (gains) losses included in net income	(6)	30	9
Unrealized gains (losses) of cash flow hedge derivatives	10	10	(43)
Total other comprehensive income (loss), net of tax	(346)	(639)	(2,238)
Total comprehensive income, net of tax	1,688	1,416	480
Comprehensive income attributable to noncontrolling interests, net of tax	(118)	(100)	(115)
Total comprehensive income, net of tax, attributable to ABB	1,570	1,316	365

See accompanying Notes to the Consolidated Financial Statements.

Consolidated Balance Sheets

December 31 ($ in millions, except share data)	2016	2015
Cash and equivalents	3,644	4,565
Marketable securities and short-term investments	1,953	1,633
Receivables, net	9,696	10,061
Inventories, net	4,347	4,757
Prepaid expenses	176	225
Deferred taxes	888	881
Other current assets	688	638
Assets held for sale	548	—
Total current assets	**21,940**	**22,760**
Property, plant and equipment, net	4,743	5,276
Goodwill	9,501	9,671
Other intangible assets, net	1,996	2,337
Prepaid pension and other employee benefits	90	68
Investments in equity-accounted companies	170	178
Deferred taxes	527	423
Other non-current assets	532	643
Total assets	**39,499**	**41,356**
Accounts payable, trade	4,446	4,342
Billings in excess of sales	1,241	1,375
Short-term debt and current maturities of long-term debt	1,003	1,454
Advances from customers	1,398	1,598
Deferred taxes	258	249
Provisions for warranties	1,142	1,089
Other provisions	1,765	1,920
Other current liabilities	3,936	3,817
Liabilities held for sale	218	—
Total current liabilities	**15,407**	**15,844**
Long-term debt	5,800	5,985
Pension and other employee benefits	1,834	1,924
Deferred taxes	957	965
Other non-current liabilities	1,604	1,650
Total liabilities	**25,602**	**26,368**
Commitments and contingencies		
Stockholders' equity:		
Capital stock and additional paid-in capital (2,214,743,264 and 2,314,743,264 issued shares at December 31, 2016 and 2015, respectively)	216	1,444
Retained earnings	19,925	20,476
Accumulated other comprehensive loss	(5,187)	(4,858)
Treasury stock, at cost (76,036,429 and 123,118,123 shares at December 31, 2016 and 2015, respectively)	(1,559)	(2,581)
Total ABB stockholders' equity	**13,395**	**14,481**
Noncontrolling interests	502	507
Total stockholders' equity	**13,897**	**14,988**
Total liabilities and stockholders' equity	**39,499**	**41,356**

See accompanying Notes to the Consolidated Financial Statements

Consolidated Statements of Cash Flows

Year ended December 31 ($ in millions)	2016	2015	2014
Operating activities:			
Net income	2,034	2,055	2,718
Adjustments to reconcile net income to net cash provided by operating activities			
Depreciation and amortization	1,135	1,160	1,305
Deferred taxes	(147)	(219)	65
Net loss from derivatives and foreign exchange	10	15	167
Net gain from sale of property, plant and equipment	(38)	(26)	(17)
Net loss (gain) from sale of businesses	10	20	(543)
Share-based payment arrangements	54	61	73
Other	112	94	55
Changes in operating assets and liabilities			
Trade receivables, net	10	162	(12)
Inventories, net	115	105	(176)
Trade payables	340	(112)	257
Accrued liabilities	80	(24)	9
Billings in excess of sales	(25)	35	(118)
Provisions, net	14	330	(127)
Advances from customers	(163)	106	39
Income taxes payable and receivable	125	(32)	(13)
Other assets and liabilities, net	177	88	163
Net cash provided by operating activities	3,843	3,818	3,845
Investing activities:			
Purchases of marketable securities (available-for-sale)	(1,214)	(1,925)	(1,430)
Purchases of short-term investments	(3,092)	(614)	(1,465)
Purchases of property, plant and equipment and intangible assets	(831)	(876)	(1,026)
Acquisition of businesses (net of cash acquired) and increases in cost- and equity-accounted companies	(26)	(56)	(70)
Proceeds from sales of marketable securities (available-for-sale)	1,057	434	361
Proceeds from maturity of marketable securities (available-for-sale)	539	1,022	523
Proceeds from short-term investments	2,241	653	1,011
Proceeds from sales of property, plant and equipment	61	68	33
Proceeds from sales of businesses (net of transaction costs and cash disposed) and cost- and equity-accounted companies	(1)	69	1,110
Net cash from settlement of foreign currency derivatives	(57)	231	(179)
Other investing activities	18	20	11
Net cash used in investing activities	(1,305)	(974)	(1,121)
Financing activities:			
Net changes in debt with maturities of 90 days or less	(152)	3	(103)
Increase in debt	912	68	150
Repayment of debt	(1,249)	(101)	(90)
Delivery of shares	192	107	38
Purchase of treasury stock	(1,299)	(1,487)	(1,003)
Dividends paid	—	(1,357)	(1,841)
Reduction in nominal value of common shares paid to shareholders	(1,610)	(392)	—
Dividends paid to noncontrolling shareholders	(122)	(137)	(132)
Other financing activities	(27)	(84)	(43)
Net cash used in financing activities	(3,355)	(3,380)	(3,024)
Effects of exchange rate changes on cash and equivalents	(104)	(342)	(278)
Net change in cash and equivalents — continuing operations	(921)	(878)	(578)
Cash and equivalents, beginning of period	4,565	5,443	6,021
Cash and equivalents, end of period	3,644	4,565	5,443
Supplementary disclosure of cash flow information:			
Interest paid	213	221	259
Taxes paid	814	1,043	1,155

See accompanying Notes to the Consolidated Financial Statements.

Consolidated Statements of Changes in Stockholders' Equity

Years ended December 31, 2016, 2015 and 2014 ($ in millions)	Capital stock and additional paid-in capital	Retained earnings
Balance at January 1, 2014	**1,750**	**19,186**
Comprehensive income:		
Net income		2,594
Foreign currency translation adjustments, net of tax		
Effect of change in fair value of available-for-sale securities, net of tax		
Unrecognized income (expense) related to pensions and other postretirement plans, net of tax		
Change in derivatives qualifying as cash flow hedges, net of tax		
Total comprehensive income		
Changes in noncontrolling interests	(34)	
Dividends paid to noncontrolling shareholders		
Dividends paid		(1,841)
Share-based payment arrangements	73	
Purchase of treasury stock		
Delivery of shares	(17)	
Call options	5	
Balance at December 31, 2014	**1,777**	**19,939**
Comprehensive income:		
Net income		1,933
Foreign currency translation adjustments, net of tax		
Effect of change in fair value of available-for-sale securities, net of tax		
Unrecognized income (expense) related to pensions and other postretirement plans, net of tax		
Change in derivatives qualifying as cash flow hedges, net of tax		
Total comprehensive income		
Changes in noncontrolling interests	(30)	(25)
Dividends paid to noncontrolling shareholders		
Dividends paid		(1,317)
Reduction in nominal value of common shares paid to shareholders	(349)	(54)
Share-based payment arrangements	61	
Purchase of treasury stock		
Delivery of shares	(19)	
Call options	4	
Balance at December 31, 2015	**1,444**	**20,476**
Comprehensive income:		
Net income		1,899
Foreign currency translation adjustments, net of tax		
Effect of change in fair value of available-for-sale securities, net of tax		
Unrecognized income (expense) related to pensions and other postretirement plans, net of tax		
Change in derivatives qualifying as cash flow hedges, net of tax		
Total comprehensive income		
Changes in noncontrolling interests		
Dividends paid to noncontrolling shareholders		
Reduction in nominal value of common shares paid to shareholders	(1,224)	(402)
Cancellation of treasury shares	(40)	(2,007)
Share-based payment arrangements	54	
Purchase of treasury stock		
Delivery of shares	(22)	(41)
Call options	4	
Balance at December 31, 2016	**216**	**19,925**

See accompanying Notes to the Consolidated Financial Statements.

Accumulated other comprehensive loss								
Foreign currency translation adjustments	Unrealized gains (losses) on available-for-sale securities	Pension and other post-retirement plan adjustments	Unrealized gains (losses) of cash flow hedge derivatives	Total accumulated other comprehensive loss	Treasury stock	Total ABB stockholders' equity	Noncontrolling interests	Total stockholders' equity
(431)	7	(1,610)	22	(2,012)	(246)	18,678	530	19,208
						2,594	124	2,718
(1,671)				(1,671)		(1,671)	(9)	(1,680)
	6			6		6		6
		(521)		(521)		(521)		(521)
			(43)	(43)		(43)		(43)
						365	115	480
						(34)	33	(1)
						—	(132)	(132)
						(1,841)		(1,841)
						73		73
					(1,015)	(1,015)		(1,015)
					55	38		38
						5		5
(2,102)	13	(2,131)	(21)	(4,241)	(1,206)	16,269	546	16,815
						1,933	122	2,055
(1,033)				(1,033)		(1,033)	(25)	(1,058)
	(6)			(6)		(6)		(6)
		412		412		412	3	415
			10	10		10		10
						1,316	100	1,416
						(55)	(2)	(57)
						—	(137)	(137)
						(1,317)		(1,317)
						(403)		(403)
						61		61
					(1,501)	(1,501)		(1,501)
					126	107		107
						4		4
(3,135)	7	(1,719)	(11)	(4,858)	(2,581)	14,481	507	14,988
						1,899	135	2,034
(457)				(457)		(457)	(17)	(474)
	—			—		—		—
		118		118		118		118
			10	10		10		10
						1,570	118	1,688
						—	(1)	(1)
						—	(122)	(122)
						(1,626)		(1,626)
					2,047	—		—
						54		54
					(1,280)	(1,280)		(1,280)
					255	192		192
						4		4
(3,592)	7	(1,601)	(1)	(5,187)	(1,559)	13,395	502	13,897

Notes to the Consolidated Financial Statements

Note 1
The Company

ABB Ltd and its subsidiaries (collectively, the Company) together form a pioneering technology leader in electrification products, robotics and motion, industrial automation and power grids, serving customers in utilities, industry and transport & infrastructure globally.

Note 2
Significant accounting policies

The following is a summary of significant accounting policies followed in the preparation of these Consolidated Financial Statements.

Basis of presentation
The Consolidated Financial Statements are prepared in accordance with United States of America (United States or U.S.) generally accepted accounting principles (U.S. GAAP) and are presented in United States dollars ($ or USD) unless otherwise stated. The par value of capital stock is denominated in Swiss francs.

Reclassifications
Certain amounts reported for prior years in the Consolidated Financial Statements and the accompanying Notes have been reclassified to conform to the current year's presentation. These changes primarily relate to the change in the definition of segment profit and the reorganization of the Company's operating segments (see Note 23).

Scope of consolidation
The Consolidated Financial Statements include the accounts of ABB Ltd and companies which are directly or indirectly controlled by ABB Ltd. Additionally, the Company consolidates variable interest entities if it has determined that it is the primary beneficiary. Intercompany accounts and transactions are eliminated. Investments in joint ventures and affiliated companies in which the Company has the ability to exercise significant influence over operating and financial policies (generally through direct or indirect ownership of 20 percent to 50 percent of the voting rights), are recorded in the Consolidated Financial Statements using the equity method of accounting.

Operating cycle
A portion of the Company's activities (primarily long-term construction activities) has an operating cycle that exceeds one year. For classification of current assets and liabilities related to such activities, the Company elected to use the duration of the individual contracts as its operating cycle. Accordingly, there are accounts receivable, inventories and provisions related to these contracts which will not be realized within one year that have been classified as current.

Use of estimates
The preparation of financial statements in conformity with U.S. GAAP requires management to make assumptions and estimates that directly affect the amounts reported in the Consolidated Financial Statements and the accompanying Notes. The most significant, difficult and subjective of such accounting assumptions and estimates include:

- estimates used to record expected costs for employee severance in connection with restructuring programs,
- estimates used to record warranty obligations,
- assumptions and projections, principally related to future material, labor and project-related overhead costs, used in determining the percentage-of-completion on projects,
- estimates of loss contingencies associated with litigation or threatened litigation and other claims and inquiries, environmental damages, product warranties, self-insurance reserves, regulatory and other proceedings,
- assumptions used in the calculation of pension and postretirement benefits and the fair value of pension plan assets,
- estimates to determine valuation allowances for deferred tax assets and amounts recorded for uncertain tax positions,
- growth rates, discount rates and other assumptions used to determine impairment of long-lived assets and in testing goodwill for impairment,
- assumptions used in determining inventory obsolescence and net realizable value,
- estimates and assumptions used in determining the fair values of assets and liabilities assumed in business combinations, and
- assessment of the allowance for doubtful accounts.

The actual results and outcomes may differ from the Company's estimates and assumptions.

Cash and equivalents
Cash and equivalents include highly liquid investments with maturities of three months or less at the date of acquisition.

Currency and other local regulatory limitations related to the transfer of funds exist in a number of countries where the Company operates. Funds, other than regular dividends, fees or loan repayments, cannot be readily transferred abroad from these countries and are therefore deposited and used for working capital needs locally. These funds are included in cash and equivalents as they are not considered restricted.

Marketable securities and short-term investments
Management determines the appropriate classification of held-to-maturity and available-for-sale securities at the time of purchase. At each reporting date, the appropriateness of the classification of the Company's investments in debt and equity securities is reassessed. Debt securities are classified as held-to-maturity when the Company has the positive intent and ability to hold the securities to maturity. Held-to-maturity securities are stated at amortized cost, adjusted for accretion of discounts or amortization of premiums to maturity computed under the effective interest method. Such accretion or amortization is included in "Interest and dividend income". Marketable debt securities not classified as held-to-maturity and equity securities that have readily determinable fair values are classified as available-for-sale and reported at fair value.

Unrealized gains and losses on available-for-sale securities are excluded from the determination of earnings and are instead recognized in the "Accumulated other comprehensive loss" component of stockholders' equity, net of tax, until realized. Realized gains and losses on available-for-sale securities are computed based upon the historical cost of these securities, using the specific identification method.

Marketable debt securities are generally classified as either "Cash and equivalents" or "Marketable securities and short-term investments" according to their maturity at the time of acquisition.

Marketable equity securities are generally classified as "Marketable securities and short-term investments", however any marketable securities held as a long-term investment rather than as an investment of excess liquidity, are classified as "Other non-current assets".

The Company performs a periodic review of its debt and equity securities to determine whether an other-than-temporary impairment has occurred. Generally, when an individual security has been in an unrealized loss position for an extended period of time, the Company evaluates whether an impairment has occurred. The evaluation is based on specific facts and circumstances at the time of assessment, which include general market conditions, and the duration and extent to which the fair value is below cost.

If the fair value of a debt security is less than its amortized cost, then an other-than-temporary impairment for the difference is recognized if (i) the Company has the intent to sell the security, (ii) it is more likely than not that the Company will be required to sell the security before recovery of its amortized cost base or (iii) a credit loss exists insofar as the Company does not expect to recover the entire recognized amortized cost of the security. Such impairment charges are generally recognized in "Interest and other finance expense". If the impairment is due to factors other than credit losses, and the Company does not intend to sell the security and it is not more likely than not that it will be required to sell the security before recovery of the security's amortized cost, such impairment charges are recorded in "Accumulated other comprehensive loss".

In addition, for equity securities, the Company assesses whether the cost value will recover within the near-term and whether the Company has the intent and ability to hold that equity security until such recovery occurs. If an other-than-temporary impairment is identified, the security is written down to its fair value and the related losses are recognized in "Interest and other finance expense", unless the impairment relates to equity securities classified as "Other non-current assets", in which case the impairment is reported in "Other income (expense), net".

Accounts receivable and allowance for doubtful accounts
Accounts receivable are recorded at the invoiced amount. The Company has a group-wide policy on the management of credit risk. The policy includes a credit assessment methodology to assess the creditworthiness of customers and assign to those customers a risk category. Third-party agencies' ratings are considered, if available. For customers where agency ratings are not available, the customer's most recent financial statements, payment history and other relevant information are considered in the assignment to a risk category. Customers are assessed at least annually or more frequently when information on significant changes in the customers' financial position becomes known. In addition to the assignment to a risk category, a credit limit per customer is set.

The allowance for doubtful accounts is the Company's best estimate of the amount of probable credit losses in existing accounts receivable. The Company determines the allowance based on historical write-off experience and customer specific data. If an amount has not been settled within its contractual payment term then it is considered past due. The Company reviews the allowance for doubtful accounts regularly and past due balances are reviewed for collectability. Account balances are charged off against the related allowance when the Company believes that the amount will not be recovered.

The Company, in its normal course of business, transfers receivables to third parties, generally without recourse. The transfer is accounted for as a sale when the Company has surrendered control over the receivables. Control is deemed to have been surrendered when (i) the transferred receivables have been put presumptively beyond the reach of the Company and its creditors, even in bankruptcy or other receivership, (ii) the third-party transferees have the right to pledge or exchange the transferred receivables, and (iii) the Company has relinquished effective control over the transferred receivables and does not retain the ability or obligation to repurchase or redeem the transferred receivables. At the time of sale, the sold receivables are removed from the Consolidated Balance Sheets and the related cash inflows are classified as operating activities in the Consolidated Statements of Cash Flows. Costs associated with the sale of receivables, including the related gains and losses from the sales, are included in "Interest and other finance expense". Transfers of receivables that do not meet the requirements for treatment as sales are accounted for as secured borrowings and the related cash flows are classified as financing activities in the Consolidated Statements of Cash Flows.

Concentrations of credit risk
The Company sells a broad range of products, systems, services and software to a wide range of industrial, commercial and utility customers as well as various government agencies and quasi-governmental agencies throughout the world. Concentrations of credit risk with respect to accounts receivable are limited, as the Company's customer base is comprised of a large number of individual customers. Ongoing credit evaluations of customers' financial positions are performed to determine whether the use of credit support instruments such as guarantees, letters of credit or credit insurance are necessary; collateral is not generally required. The Company maintains reserves for potential credit losses as discussed above in "Accounts receivable and allowance for doubtful accounts". Such losses, in the aggregate, are in line with the Company's expectations.

It is the Company's policy to invest cash in deposits with banks throughout the world with certain minimum credit ratings and in high quality, low risk, liquid investments. The Company actively manages its credit risk by routinely reviewing the creditworthiness of the banks and the investments held. The Company has not incurred significant credit losses related to such investments.

The Company's exposure to credit risk on derivative financial instruments is the risk that the counterparty will fail to meet its obligations. To reduce this risk, the Company has credit policies that require the establishment and periodic review of credit limits for individual counterparties. In addition, the Company has entered into close-out netting agreements with most derivative counterparties. Close-out netting agreements provide for the termination, valuation and net settlement of some or all outstanding transactions between two counterparties on the occurrence of one or more pre-defined trigger events. In the Consolidated Financial Statements derivative transactions are presented on a gross basis.

Revenue recognition

The Company generally recognizes revenues for the sale of goods when persuasive evidence of an arrangement exists, delivery has occurred, the price is fixed or determinable and collectability is reasonably assured. With regards to the sale of products, delivery is not considered to have occurred, and therefore no revenues are recognized, until the customer has taken title to the products and assumed the risks and rewards of ownership of the products specified in the purchase order or sales agreement. Generally, the transfer of title and risks and rewards of ownership are governed by the contractually-defined shipping terms. The Company uses various International Commercial shipping terms (as promulgated by the International Chamber of Commerce) in its sales of products to third-party customers, such as Ex Works (EXW), Free Carrier (FCA) and Delivered Duty Paid (DDP). Subsequent to delivery of the products, the Company generally has no further contractual performance obligations that would preclude revenue recognition.

Revenues under long-term construction-type contracts are generally recognized using the percentage-of-completion method of accounting. The Company principally uses the cost-to-cost method to measure progress towards completion on contracts. Under this method, progress of contracts is measured by actual costs incurred in relation to the Company's best estimate of total estimated costs, which are reviewed and updated routinely for contracts in progress. The cumulative effect of any change in estimate is recorded in the period when the change in estimate is determined.

Short-term construction-type contracts, or long-term construction-type contracts for which reasonably dependable estimates cannot be made or for which inherent hazards make estimates difficult, are accounted for under the completed-contract method. Revenues under the completed-contract method are recognized upon substantial completion — that is: acceptance by the customer, compliance with performance specifications demonstrated in a factory acceptance test or similar event.

For non construction-type contracts that contain customer acceptance provisions, revenue is deferred until customer acceptance occurs or the Company has demonstrated the customer-specified objective criteria have been met or the contractual acceptance period has lapsed.

Revenues from service transactions are recognized as services are performed. For long-term service contracts, revenues are recognized on a straight-line basis over the term of the contract or, if the performance pattern is other than straight-line, as the services are provided. Service revenues reflect revenues earned from the Company's activities in providing services to customers primarily subsequent to the sale and delivery of a product or complete system. Such revenues consist of maintenance-type contracts, field service activities that include personnel and accompanying spare parts, and installation and commissioning of products as a stand-alone service or as part of a service contract.

Revenues for software license fees are recognized when persuasive evidence of a non-cancelable license agreement exists, delivery has occurred, the license fee is fixed or determinable, and collection is probable. In software arrangements that include rights to multiple software products and/or services, the total arrangement fee is allocated using the residual method. Under this method, revenue is allocated to the undelivered elements based on vendor-specific objective evidence (VSOE) of the fair value of such undelivered elements and the residual amounts of revenue are allocated to the delivered elements. Elements included in multiple element arrangements may consist of software licenses, maintenance (which includes customer support services and unspecified upgrades), hosting, and consulting services. VSOE is based on the price generally charged when an element is sold separately or, in the case of an

element not yet sold separately, the price established by management, if it is probable that the price, once established, will not change once the element is sold separately. If VSOE does not exist for an undelivered element, the total arrangement fee will be recognized as revenue over the life of the contract or upon delivery of the undelivered element.

The Company offers multiple element arrangements to meet its customers' needs. These arrangements may involve the delivery of multiple products and/or performance of services (such as installation and training) and the delivery and/or performance may occur at different points in time or over different periods of time. Deliverables of such multiple element arrangements are evaluated to determine the unit of accounting and if certain criteria are met, the Company allocates revenues to each unit of accounting based on its relative selling price. A hierarchy of selling prices is used to determine the selling price of each specific deliverable that includes VSOE (if available), third-party evidence (if VSOE is not available), or estimated selling price if neither of the first two is available. The estimated selling price reflects the Company's best estimate of what the selling prices of elements would be if the elements were sold on a stand-alone basis. Revenue is allocated between the elements of an arrangement at the inception of the arrangement. Such arrangements generally include industry-specific performance and termination provisions, such as in the event of substantial delays or non-delivery.

Revenues are reported net of customer rebates and similar incentives. Taxes assessed by a governmental authority that are directly imposed on revenue-producing transactions between the Company and its customers, such as sales, use, value-added and some excise taxes, are excluded from revenues.

Contract loss provisions
Losses on contracts are recognized in the period when they are identified and are based upon the anticipated excess of contract costs over the related contract revenues.

Shipping and handling costs
Shipping and handling costs are recorded as a component of cost of sales.

Inventories
Inventories are stated at the lower of cost or net realizable value. Cost is determined using the first-in, first-out method, the weighted-average cost method, or in certain circumstances (for example, where the completed-contract method of revenue recognition is used) the specific identification method. Inventoried costs are stated at acquisition cost or actual production cost, including direct material and labor and applicable manufacturing overheads. Adjustments to reduce the cost of inventory to its net realizable value are made, if required, for decreases in sales prices, obsolescence or similar reductions in value.

Impairment of long-lived assets
Long-lived assets that are held and used are assessed for impairment when events or circumstances indicate that the carrying amount of the asset may not be recoverable. If the asset's net carrying value exceeds the asset's net undiscounted cash flows expected to be generated over its remaining useful life including net proceeds expected from disposition of the asset, if any, the carrying amount of the asset is reduced to its estimated fair value. The estimated fair value is determined using a market, income and/or cost approach.

Property, plant and equipment
Property, plant and equipment is stated at cost, less accumulated depreciation and is depreciated using the straight-line method. The estimated useful lives of the assets are generally as follows:

- factories and office buildings: 30 to 40 years,
- other facilities: 15 years,
- machinery and equipment: 3 to 15 years,
- furniture and office equipment: 3 to 8 years, and
- leasehold improvements are depreciated over their estimated useful life or, for operating leases, over the lease term, if shorter.

Goodwill and other intangible assets
Goodwill is reviewed for impairment annually as of October 1, or more frequently if events or circumstances indicate that the carrying value may not be recoverable.

Goodwill is evaluated for impairment at the reporting unit level. A reporting unit is an operating segment or one level below an operating segment. For the annual impairment review in 2016, the reporting units were the same as the operating segments for Electrification Products, Discrete Automation and Motion and Power Grids, while for the Process Automation operating segment, the reporting units were determined to be one level below the operating segment.

When evaluating goodwill for impairment, the Company uses either a qualitative or quantitative assessment method for each reporting unit. The qualitative assessment involves determining, based on an evaluation of qualitative factors, if it is more likely than not that the fair value of a reporting unit is less than its carrying value. If, based on this qualitative assessment, it is determined to be more likely than not that the reporting unit's fair value is less than its carrying value, the two-step quantitative impairment test (described below) is performed, otherwise no further analysis is required. If the Company elects not to perform the qualitative assessment for a reporting unit, the two-step quantitative impairment test is performed.

The two-step quantitative impairment test calculates the fair value of a reporting unit (based on the income approach whereby the fair value of a reporting unit is calculated based on the present value of future cash flows) and compares it to the reporting unit's carrying value. If the carrying value of the net assets of a reporting unit exceeds the fair value of the reporting unit then the Company performs the second step of the impairment test to determine the implied fair value of the reporting unit's goodwill. If the carrying value of the reporting unit's goodwill exceeds its implied fair value, the Company records an impairment charge equal to the difference.

The cost of acquired intangible assets with a finite life is amortized using a method of amortization that reflects the pattern of intangible assets' expected contributions to future cash flows. If that pattern cannot be reliably determined, the straight-line method is used. The amortization periods range from 3 to 5 years for software and from 5 to 20 years for customer-, technology- and marketing-related intangibles. Intangible assets with a finite life are tested for impairment upon the occurrence of certain triggering events.

Capitalized software costs

Software for internal use

Costs incurred in the application development stage until the software is substantially complete are capitalized and are amortized on a straight-line basis over the estimated useful life of the software, typically ranging from 3 to 5 years.

Software for sale

Costs incurred after the software has demonstrated its technological feasibility until the product is available for general release to the customers are capitalized and amortized on a straight-line basis over the estimated life of the product. The Company periodically performs an evaluation to determine that the unamortized cost of software to be sold does not exceed the net realizable value. If the unamortized cost of software to be sold exceeds its net realizable value, the Company records an impairment charge equal to the difference.

Derivative financial instruments and hedging activities

The Company uses derivative financial instruments to manage currency, commodity, interest rate and equity exposures, arising from its global operating, financing and investing activities (see Note 5).

The Company recognizes all derivatives, other than certain derivatives indexed to the Company's own stock, at fair value in the Consolidated Balance Sheets. Derivatives that are not designated as hedging instruments are reported at fair value with derivative gains and losses reported through earnings and classified consistent with the nature of the underlying transaction.

If the derivatives are designated as a hedge, depending on the nature of the hedge, changes in the fair value of the derivatives will either be offset against the change in fair value of the hedged item attributable to the risk being hedged through earnings (in the case of a fair value hedge) or recognized in "Accumulated other comprehensive loss" until the hedged item is recognized in earnings (in the case of a cash flow hedge). The ineffective portion of a derivative's change in fair value is immediately recognized in earnings consistent with the classification of the hedged item. Where derivative financial instruments have been designated as cash flow hedges of forecasted transactions and such forecasted transactions are no longer probable of occurring, hedge accounting is discontinued and any derivative gain or loss previously included in "Accumulated other comprehensive loss" is reclassified into earnings consistent

with the nature of the original forecasted transaction. Gains or losses from derivatives designated as hedging instruments in a fair value hedge are reported through earnings and classified consistent with the nature of the underlying hedged transaction.

Certain commercial contracts may grant rights to the Company or the counterparties, or contain other provisions that are considered to be derivatives. Such embedded derivatives are assessed at inception of the contract and depending on their characteristics, accounted for as separate derivative instruments and shown at their fair value in the balance sheet with changes in their fair value reported in earnings consistent with the nature of the commercial contract to which they relate.

Derivatives are classified in the Consolidated Statements of Cash Flows in the same section as the underlying item. Cash flows from the settlement of undesignated derivatives used to manage the risks of different underlying items on a net basis, are classified within "Net cash provided by operating activities", as the underlying items are primarily operational in nature. Other cash flows on the settlement of derivatives are recorded within "Net cash used in investing activities".

Leases
The Company leases primarily real estate and office equipment. Rental expense for operating leases is recorded on a straight-line basis over the life of the lease term. Lease transactions where substantially all risks and rewards incident to ownership are transferred from the lessor to the lessee are accounted for as capital leases. All other leases are accounted for as operating leases. Amounts due under capital leases are recorded as a liability. The interest in assets acquired under capital leases is recorded as property, plant and equipment. Depreciation and amortization of assets recorded under capital leases is included in depreciation and amortization expense.

Translation of foreign currencies and foreign exchange transactions
The functional currency for most of the Company's subsidiaries is the applicable local currency. The translation from the applicable functional currencies into the Company's reporting currency is performed for balance sheet accounts using exchange rates in effect at the balance sheet date and for income statement accounts using average exchange rates prevailing during the year. The resulting translation adjustments are excluded from the determination of earnings and are recognized in "Accumulated other comprehensive loss" until the subsidiary is sold, substantially dated or evaluated for impairment in anticipation of disposal.

Foreign currency exchange gains and losses, such as those resulting from foreign currency denominated receivables or payables, are included in the determination of earnings, except as they relate to intercompany loans that are equity-like in nature with no reasonable expectation of repayment, which are recognized in "Accumulated other comprehensive loss". Exchange gains and losses recognized in earnings are included in "Total revenues", "Total cost of sales", "Selling, general and administrative expenses" or "Interest and other finance expense" consistent with the nature of the underlying item.

Income taxes
The Company uses the asset and liability method to account for deferred taxes. Under this method, deferred tax assets and liabilities are determined based on temporary differences between the financial reporting and the tax bases of assets and liabilities. Deferred tax assets and liabilities are measured using enacted tax rates and laws that are expected to be in effect when the differences are expected to reverse. The Company records a deferred tax asset when it determines that it is more likely than not that the deduction will be sustained based upon the deduction's technical merit. Deferred tax assets and liabilities that can be offset against each other are reported on a net basis. A valuation allowance is recorded to reduce deferred tax assets to the amount that is more likely than not to be realized.

Deferred taxes are provided on unredeemed retained earnings of the Company's subsidiaries. However, deferred taxes are not provided on such unredeemed retained earnings to the extent it is expected that the earnings are permanently reinvested. Such earnings may become taxable upon the sale or liquidation of these subsidiaries or upon the remittance of dividends.

The Company operates in numerous tax jurisdictions and, as a result, is regularly subject to audit by tax authorities. The Company provides for tax contingencies whenever it is deemed more likely than not that a tax asset has been impaired or a tax liability has been incurred for events such as tax claims or changes in tax laws. Contingency provisions are recorded based on the technical merits of the Company's filing

position, considering the applicable tax laws and Organisation for Economic Co-operation and Development (OECD) guidelines and are based on its evaluations of the facts and circumstances as of the end of each reporting period.

The Company applies a two-step approach to recognize and measure uncertainty in income taxes. The first step is to evaluate the tax position for recognition by determining if the weight of available evidence indicates that it is more likely than not that the position will be sustained on audit, including resolution of related appeals or litigation processes, if any. The second step is to measure the tax benefit as the largest amount which is more than 50 percent likely of being realized upon ultimate settlement. Uncertain tax positions that could be settled against existing loss carryforwards or income tax credits are reported net.

The expense related to tax penalties is classified in the Consolidated Income Statements as "Provision for taxes", while interest thereon is classified as "Interest and other finance expense".

Research and development
Research and development costs not related to specific customer orders are generally expensed as incurred.

Earnings per share
Basic earnings per share is calculated by dividing income by the weighted-average number of shares outstanding during the year. Diluted earnings per share is calculated by dividing income by the weighted-average number of shares outstanding during the year, assuming that all potentially dilutive securities were exercised, if dilutive. Potentially dilutive securities include: outstanding written call options, outstanding options and shares granted subject to certain conditions under the Company's share-based payment arrangements. See further discussion related to earnings per share in Note 20 and of potentially dilutive securities in Note 18.

Share-based payment arrangements
The Company has various share-based payment arrangements for its employees, which are described more fully in Note 18. Such arrangements are accounted for under the fair value method. For awards that are equity-settled, total compensation is measured at grant date, based on the fair value of the award at that date, and recorded in earnings over the period the employees are required to render service. For awards that are cash-settled, compensation is initially measured at grant date and subsequently remeasured at each reporting period, based on the fair value and vesting percentage of the award at each of those dates, with changes in the liability recorded in earnings.

Fair value measures
The Company uses fair value measurement principles to record certain financial assets and liabilities on a recurring basis and, when necessary, to record certain non-financial assets at fair value on a non-recurring basis, as well as to determine fair value disclosures for certain financial instruments carried at amortized cost in the financial statements. Financial assets and liabilities recorded at fair value on a recurring basis include foreign currency, commodity and interest rate derivatives, as well as cash-settled call options and available-for-sale securities. Non-financial assets recorded at fair value on a non-recurring basis include long-lived assets that are reduced to their estimated fair value due to impairments.

Fair value is the price that would be received when selling an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. In determining fair value, the Company uses various valuation techniques including the market approach (using observable market data for identical or similar assets and liabilities), the income approach (discounted cash flow models) and the cost approach (using costs a market participant would incur to develop a comparable asset). Inputs used to determine the fair value of assets and liabilities are defined by a three-level hierarchy, depending on the reliability of those inputs. The Company has categorized its financial assets and liabilities and non-financial assets measured at fair value within this hierarchy based on whether the inputs to the valuation technique are observable or unobservable. An observable input is based on market data obtained from independent sources, while an unobservable input reflects the Company's assumptions about market data.

The levels of the fair value hierarchy are as follows:

Level 1:
Valuation inputs consist of quoted prices in an active market for identical assets or liabilities (observable quoted prices). Assets and liabilities valued using Level 1 inputs include exchange-traded equity securities, listed derivatives which are actively traded such as commodity futures, interest rate futures and certain actively traded debt securities.

Level 2:
Valuation inputs consist of observable inputs (other than Level 1 inputs) such as actively quoted prices for similar assets, quoted prices in inactive markets and inputs other than quoted prices such as interest rate yield curves, credit spreads, or inputs derived from other observable data by interpolation, correlation, regression or other means. The adjustments applied to quoted prices or the inputs used in valuation models may be both observable and unobservable. In these cases, the fair value measurement is classified as Level 2 unless the unobservable portion of the adjustment or the unobservable input to the valuation model is significant, in which case the fair value measurement would be classified as Level 3. Assets and liabilities valued or disclosed using Level 2 inputs include investments in certain funds, reverse repurchase agreements, certain debt securities that are not actively traded, interest rate swaps, commodity swaps, cash-settled call options, forward foreign exchange contracts, foreign exchange swaps and forward rate agreements, time deposits, as well as financing receivables and debt.

Level 3:
Valuation inputs are based on the Company's assumptions of relevant market data (unobservable input).

Whenever quoted prices involve bid-ask spreads, the Company ordinarily determines fair values based on mid-market quotes. However, for the purpose of determining the fair value of cash-settled call options serving as hedges of the Company's management incentive plan (MIP), bid prices are used.

When determining fair values based on quoted prices in an active market, the Company considers if the level of transaction activity for the financial instrument has significantly decreased, or would not be considered orderly. In such cases, the resulting changes in valuation techniques would be disclosed. If the market is considered disorderly or if quoted prices are not available, the Company is required to use another valuation technique, such as an income approach.

Disclosures about the Company's fair value measurements of assets and liabilities are included in Note 6.

Contingencies
The Company is subject to proceedings, litigation or threatened litigation and other claims and inquiries, related to environmental, labor, product, regulatory, tax (other than income tax) and other matters, and is required to assess the likelihood of any adverse judgments or outcomes to these matters, as well as potential ranges of probable losses. A determination of the provision required, if any, for these contingencies is made after analysis of each individual issue, often with assistance from both internal and external legal counsel and technical experts. The required amount of a provision for a contingency of any type may change in the future due to new developments in the particular matter, including changes in the approach to its resolution.

The Company records a provision for its contingent obligations when it is probable that a loss will be incurred and the amount can be reasonably estimated. Any such provision is generally recognized on an undiscounted basis using the Company's best estimate of the amount of loss incurred or at the lower end of an estimated range when a single best estimate is not determinable. In some cases, the Company may be able to recover a portion of the costs relating to these obligations from insurers or other third parties; however, the Company records such amounts only when it is probable that they will be collected.

The Company provides for anticipated costs for warranties when it recognizes revenues on the related products or contracts. Warranty costs include calculated costs arising from imperfections in design, material and workmanship in the Company's products. The Company makes individual assessments on contracts with risks resulting from order-specific conditions or guarantees and assessments on an overall, statistical basis for similar products sold in larger quantities.

The Company may have legal obligations to perform environmental clean-up activities related to land and buildings as a result of the normal operations of its business. In some cases, the timing or the method of settlement, or both, are conditional upon a future event that may or may not be within the control of the Company, but the underlying obligation itself is unconditional and certain. The Company recognizes a provision for these obligations when it is probable that a liability for the clean-up activity has been incurred and a reasonable estimate of its fair value can be made. In some cases, a portion of the costs expected to be incurred to settle these matters may be recoverable. An asset is recorded when it is probable that such amounts are recoverable. Provisions for environmental obligations are not discounted to their present value when the timing of payments cannot be reasonably estimated.

Pensions and other postretirement benefits
The Company has a number of defined benefit pension and other postretirement plans. The Company recognizes an asset for such a plan's overfunded status or a liability for such a plan's underfunded status in its Consolidated Balance Sheets. Additionally, the Company measures such a plan's assets and obligations that determine its funded status as of the end of the year and recognizes the changes in the funded status in the year in which the changes occur. Those changes are reported in "Accumulated other comprehensive loss".

The Company uses actuarial valuations to determine its pension and postretirement benefit costs and credits. The amounts calculated depend on a variety of key assumptions, including discount rates and expected return on plan assets. Current market conditions are considered in selecting these assumptions.

The Company's various pension plan assets are assigned to their respective levels in the fair value hierarchy in accordance with the valuation principles described in the "Fair value measures" section above.

See Note 17 for further discussion of the Company's employee benefit plans.

Business combinations
The Company accounts for assets acquired and liabilities assumed in business combinations using the acquisition method and records these at their respective fair values. Contingent consideration is recorded at fair value as an element of purchase price with subsequent adjustments recognized in income.

Identifiable intangibles consist of intellectual property such as trademarks and trade names, customer relationships, patented and unpatented technology, in-process research and development, order backlog and capitalized software; these are amortized over their estimated useful lives. Such intangibles are subsequently subject to evaluation for potential impairment if events or circumstances indicate the carrying amount may not be recoverable. See "Goodwill and other intangible assets" above. Acquisition-related costs are recognized separately from the acquisition and expensed as incurred. Upon gaining control of an entity in which an equity method or cost basis investment was held by the Company, the carrying value of that investment is adjusted to fair value with the related gain or loss recorded in income.

Deferred tax assets and liabilities based on temporary differences between the financial reporting and the tax base of assets and liabilities as well as uncertain tax positions and valuation allowances on acquired deferred tax assets assumed in connection with a business combination are initially estimated as of the acquisition date based on facts and circumstances that existed at the acquisition date. These estimates are subject to change within the measurement period (a period of up to 12 months after the acquisition date during which the acquirer may adjust the provisional acquisition amounts) with any adjustments to the preliminary estimates being recorded to goodwill. Changes in deferred taxes, uncertain tax positions and valuation allowances on acquired deferred tax assets that occur after the measurement period are recognized in income.

New accounting pronouncements
Applicable for current period
Disclosures for investments in certain entities that calculate net asset value per share (or its equivalent)
As of January 1, 2016, the Company adopted an accounting standard update regarding fair value disclosures for certain investments. Under the update, the Company is no longer required to categorize within the fair value hierarchy any investments for which fair value is measured using the net asset value per share practical expedient. The amendments also removed the requirement to make certain disclosures for investments that are eligible to be measured at fair value using the net asset value per share practical expedient. Rather, those disclosures are limited to investments for which the Company has elected to

measure the fair value using that practical expedient. This update was applied retrospectively and did not have a significant impact on the consolidated financial statements.

Simplifying the measurement of inventory

As of January 1, 2016, the Company early-adopted an accounting standard update simplifying the subsequent measurement of inventories by replacing the current lower of cost or market test with a lower of cost and net realizable value test. The guidance applies only to inventories for which cost is determined by methods other than last-in first-out and the retail inventory methods. Net realizable value is the estimated selling price in the ordinary course of business, less reasonably predictable costs of completion, disposal and transportation. The update was applied prospectively and did not have a significant impact on the consolidated financial statements.

Applicable for future periods

Revenue from contracts with customers

In May 2014, an accounting standard update was issued to clarify the principles for recognizing revenues from contracts with customers. The update, which supersedes substantially all existing revenue recognition guidance, provides a single comprehensive model for recognizing revenues on the transfer of promised goods or services to customers in an amount that reflects the consideration that is expected to be received for those goods or services. Under the standard it is possible that more judgments and estimates would be required than under existing standards, including identifying the separate performance obligations in a contract, estimating any variable consideration elements, and allocating the transaction price to each separate performance obligation. The update also requires additional disclosures about the nature, amount, timing and uncertainty of revenue and cash flows arising from contracts with customers. Further updates were issued in 2016 to clarify the guidance on identifying performance obligations, licensing and contract costs, to enhance the implementation guidance on principal versus agent considerations and to add other practical expedients.

In August 2015, the effective date for the update was deferred and the update is now effective for the Company for annual and interim periods beginning January 1, 2018, and is to be applied either (i) retrospectively to each prior reporting period presented, with the option to elect certain defined practical expedients, or (ii) retrospectively with the cumulative effect of initially applying the update recognized at the date of adoption in retained earnings (with additional disclosure as to the impact on individual financial statement lines affected). Early adoption of the standard is permitted for annual reporting periods beginning after December 15, 2016, including interim reporting periods within that reporting period.

The Company currently plans to adopt these updates as of January 1, 2018, pursuant to the aforementioned adoption method (ii) and currently does not anticipate these updates will have a significant impact on its consolidated financial statements. The Company's analysis of contracts performed in 2016 resulted in immaterial differences in the identification of performance obligations compared to the current unit of accounting determination. Except for a limited number of contracts where the required criteria are not met, the analysis supports the recognition of revenue over time following the cost-to-cost method under the new revenue recognition standard for those contracts which are following the cost-to-cost method under the current revenue recognition model. The Company continues to evaluate the expected impacts of the adoption of these updates and the expected impacts are subject to change.

Balance sheet classification of deferred taxes

In November 2015, an accounting standard update was issued which removes the requirement to separate deferred tax liabilities and assets into current and non-current amounts and instead requires all such amounts, as well as any related valuation allowance, to be classified as non-current in the balance sheet. This update is effective for the Company for annual and interim periods beginning January 1, 2017, with early adoption permitted, and is applicable either prospectively to all deferred tax liabilities and assets or retrospectively to all periods presented. The Company will adopt this update as of January 1, 2017, on a retrospective basis and expects the balance of deferred tax assets and liabilities to decrease by approximately $300 million due to additional netting impacts.

Recognition and measurement of financial assets and financial liabilities

In January 2016, an accounting standard update was issued to enhance the reporting model for financial instruments, which includes amendments to address aspects of recognition, measurement, presentation and disclosure. For example, the Company would be required to measure equity investments (except

those accounted for under the equity method) at fair value with changes in fair value recognized in net income and to present separately financial assets and financial liabilities by measurement category and form of financial asset. This update is effective for the Company for annual and interim periods beginning January 1, 2018, with early adoption permitted for certain provisions. The Company is currently evaluating the impact of this update on its consolidated financial statements.

Leases

In February 2016, an accounting standard update was issued that requires lessees to recognize lease assets and corresponding lease liabilities on the balance sheet for all leases with terms of more than 12 months. The update, which supersedes existing lease guidance, will continue to classify leases as either finance or operating, with the classification determining the pattern of expense recognition in the income statement. This update is effective for the Company for annual and interim periods beginning January 1, 2019, with early adoption permitted, and is applicable on a modified retrospective basis with various optional practical expedients. The Company is currently evaluating the impact of this update on its consolidated financial statements.

Simplifying the transition to the equity method of accounting

In March 2016, an accounting standard update was issued which eliminates the retroactive adjustments to an investment upon it qualifying for the equity method of accounting as a result of an increase in the level of ownership interest or degree of influence by the investor. It requires that the equity method investor add the cost of acquiring the additional interest in the investee to the current basis of the investor's previously held interest and adopt the equity method of accounting as of the date the investment qualifies for equity method accounting. This update is effective for the Company for annual and interim periods beginning January 1, 2017, with early adoption permitted, and is applicable prospectively. The Company does not believe that this update will have a significant impact on its consolidated financial statements.

Improvements to employee share-based payment accounting

In March 2016, an accounting standard update was issued which changes the accounting for certain aspects of share-based payment awards to employees, including the accounting for income taxes, forfeitures, and statutory tax withholding requirements, as well as the classification in the statement of cash flows. This update is effective for the Company for annual and interim periods beginning January 1, 2017, with early adoption permitted. The Company does not believe that this update will have a significant impact on its consolidated financial statements.

Measurement of credit losses on financial instruments

In June 2016, an accounting standard update was issued which replaces the existing incurred loss impairment methodology for most financial assets with a new "current expected credit loss" model. The new model will result in the immediate recognition of the estimated credit losses expected to occur over the remaining life of financial assets such as trade and other receivables, held-to-maturity debt securities, loans and other instruments. Credit losses relating to available-for-sale debt securities will be measured in a manner similar to current GAAP, except that the losses will be recorded through an allowance for credit losses rather than as a direct write-down of the security.

This update is effective for the Company for annual and interim periods beginning January 1, 2020, with early adoption permitted for annual and interim periods beginning January 1, 2019. The Company is currently evaluating the impact of this update on its consolidated financial statements.

Classification of certain cash receipts and cash payments in the statement of cash flows

In August 2016, an accounting standard update was issued which clarifies how certain cash receipts and cash payments, including debt prepayment or extinguishment costs, the settlement of zero coupon debt instruments, contingent consideration paid after a business combination, proceeds from insurance settlements, distributions from certain equity method investees and beneficial interests obtained in a financial asset securitization, should be presented and classified in the statement of cash flows. This update is effective for the Company for annual and interim periods beginning January 1, 2018 on a retrospective basis, with early adoption permitted. The Company does not believe that this update will have a significant impact on its consolidated financial statements.

Income taxes – Intra-entity transfers of assets other than inventory

In October 2016, an accounting standard update was issued that requires the Company to recognize the income tax consequences of an intra-entity transfer of an asset other than inventory when the transfer occurs instead of when the asset has been sold to an outside party. This update is effective for the Company for annual and interim periods beginning January 1, 2018, with early adoption permitted, and is applicable on a modified retrospective basis through a cumulative-effect adjustment directly to retained earnings as of the beginning of the period of adoption. The Company is currently evaluating the impact of this update on its consolidated financial statements.

Statement of cash flows – Restricted cash

In November 2016, an accounting standard update was issued which clarifies the classification and presentation of changes in restricted cash on the statement of cash flows. It requires the inclusion of cash and cash equivalents that have restrictions on withdrawal or use in total cash and cash equivalents on the statement of cash flows. This update is effective for the Company for annual and interim periods beginning January 1, 2018 on a retrospective basis, with early adoption permitted. The Company does not believe that this update will have a significant impact on its consolidated financial statements.

Clarifying the definition of a business

In January 2017, an accounting standard update was issued which narrows the definition of a business. It also provides a framework for determining whether a set of transferred assets and activities involves a business. This update is effective for the Company for annual and interim periods beginning January 1, 2018 on a prospective basis, with early adoption permitted. The Company does not believe that this update will have a significant impact on its consolidated financial statements.

Simplifying the test for goodwill impairment

In January 2017, an accounting standard update was issued which eliminates the requirement to calculate the implied fair value of goodwill when measuring a goodwill impairment loss. Instead, the Company is required to record an impairment loss based on the excess of a reporting unit's carrying amount over its fair value provided that the loss recognized does not exceed the total amount of goodwill allocated to that reporting unit. This update is effective for the Company for annual and interim periods beginning January 1, 2020 on a prospective basis, with early adoption permitted. The Company plans to early adopt this update in the first quarter of 2017 and apply it prospectively. The Company does not believe that this update will have a significant impact on its consolidated financial statements.

Clarifying the scope of asset derecognition guidance and accounting for partial sales of nonfinancial assets

In February 2017, an accounting standard update was issued which clarifies the scope of asset derecognition guidance, adds guidance for partial sales of nonfinancial assets and clarifies recognizing gains and losses from the transfer of nonfinancial assets in contracts with noncustomers. The Company plans to adopt this update retrospectively as of January 1, 2018, with the cumulative effect of initially applying the update recognized at the date of adoption in retained earnings. The Company does not believe that this update will have a significant impact on its consolidated financial statements.

Note 3
Acquisitions and business divestments

Acquisitions

Acquisitions were as follows:

($ in millions, except number of acquired businesses)	2016	2015	2014
Acquisitions (net of cash acquired)[1]	13	37	58
Aggregate excess of purchase price over fair value of net assets acquired[2]	12	34	9
Number of acquired businesses	1	3	6

[1] [illegible]

[2] [illegible]

Business divestments
In 2014, the Company received proceeds (net of transaction costs and cash disposed) of $1,090 million, relating to divestments of consolidated businesses and recorded net gains of $543 million in "Other income (expense), net" on the sale of such businesses. In 2016 and 2015, there were no significant amounts recognized from divestments of consolidated businesses.

In September 2016, the Company announced an agreement to divest its high-voltage cable system business (Cables business). The assets and liabilities of this business are shown as assets and liabilities held for sale in the Company's Consolidated Balance Sheet as at December 31, 2016. The transaction closed on March 1, 2017.

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Note 4
Cash and equivalents, marketable securities and short-term investments

Current assets
Cash and equivalents and marketable securities and short-term investments consisted of the following:

December 31, 2016 ($ in millions)	Cost basis	Gross unrealized gains	Gross unrealized losses	Fair value	Cash and equivalents	Marketable securities and short-term investments
Cash	1,704			1,704	1,704	
Time deposits	2,764			2,764	1,940	824
Other short-term investments	271			271		271
Debt securities available-for-sale						
— U.S. government obligations	221	1	(2)	220	—	220
— Other government obligations	2	—	—	2	—	2
— Corporate	95	1	(1)	95	—	95
Equity securities available-for-sale	530	11	—	541	—	541
Total	5,587	13	(3)	5,597	3,644	1,953

December 31, 2015 ($ in millions)	Cost basis	Gross unrealized gains	Gross unrealized losses	Fair value	Cash and equivalents	Marketable securities and short-term investments
Cash	1,837			1,837	1,837	
Time deposits	2,821			2,821	2,717	104
Other short-term investments	231			231		231
Debt securities available-for-sale						
— U.S. government obligations	120	2	(1)	121	—	121
— Other government obligations	2	—	—	2	—	2
— Corporate	519	1	(1)	519	11	508
Equity securities available-for-sale	658	9	—	667	—	667
Total	6,188	12	(2)	6,198	4,565	1,633

Included in Other short-term investments at December 31, 2016 and 2015, are receivables of $268 million and $224 million, respectively, representing reverse repurchase agreements. These collateralized lendings, made to a financial institution, have maturity dates of less than one year.

Non-current assets
Included in "Other non-current assets" are certain held-to-maturity marketable securities. At December 31, 2016, the amortized cost, gross unrecognized gain and fair value (based on quoted market prices) of these securities were $80 million, $6 million and $86 million, respectively. At December 31, 2015, the amortized cost, gross unrecognized gain and fair value (based on quoted market prices) of these securities were $99 million, $11 million and $110 million, respectively. These securities are pledged as security for certain

outstanding deposit liabilities and the funds received at the respective maturity dates of the securities will only be available to the Company for repayment of these obligations.

Gains, losses and contractual maturities
Gross realized gains (reclassified from accumulated other comprehensive loss to income) on available-for-sale securities totaled $1 million, $1 million and $2 million in 2016, 2015 and 2014, respectively. Gross realized losses (reclassified from accumulated other comprehensive loss to income) on available-for-sale securities totaled $1 million, $2 million and $23 million in 2016, 2015 and 2014, respectively. Such gains and losses were included in "Interest and other finance expense".

In 2016, 2015 and 2014, other-than-temporary impairments recognized on available-for-sale equity securities were not significant.

At December 31, 2016, 2015 and 2014, gross unrealized losses on available-for-sale securities that have been in a continuous unrealized loss position were not significant and the Company does not intend and does not expect to be required to sell these securities before the recovery of their amortized cost.

Contractual maturities of debt securities consisted of the following:

	Available-for-sale		Held-to-maturity	
December 31, 2016 ($ in millions)	Cost basis	Fair value	Cost basis	Fair value
Less than one year	100	100	—	—
One to five years	161	161	80	86
Six to ten years	57	56	—	—
Total	318	317	80	86

At December 31, 2016 and 2015, the Company pledged $91 million and $92 million, respectively, of available-for-sale marketable securities as collateral for issued letters of credit and other security arrangements.

Note 5
Derivative financial instruments

The Company is exposed to certain currency, commodity, interest rate and equity risks arising from its global operating, financing and investing activities. The Company uses derivative instruments to reduce and manage the economic impact of these exposures.

Currency risk
Due to the global nature of the Company's operations, many of its subsidiaries are exposed to currency risk in their operating activities from entering into transactions in currencies other than their functional currency. To manage such currency risks, the Company's policies require the subsidiaries to hedge their foreign currency exposures from binding sales and purchase contracts denominated in foreign currencies. For forecasted foreign currency denominated sales of standard products and the related foreign currency denominated purchases, the Company's policy is to hedge up to a maximum of 100 percent of the forecasted foreign currency denominated exposures, depending on the length of the forecasted exposures. Forecasted exposures greater than 12 months are not hedged. Forward foreign exchange contracts are the main instrument used to protect the Company against the volatility of future cash flows (caused by changes in exchange rates) of contracted and forecasted sales and purchases denominated in foreign currencies. In addition, within its treasury operations, the Company primarily uses foreign exchange swaps and forward foreign exchange contracts to manage the currency and timing mismatches arising in its liquidity management activities.

Commodity risk
Various commodity products are used in the Company's manufacturing activities. Consequently it is exposed to volatility in future cash flows arising from changes in commodity prices. To manage the price risk of commodities other than electricity, the Company's policies require that the subsidiaries hedge the commodity price risk exposures from binding contracts, as well as at least 50 percent (up to a maximum

of 100 percent) of the forecasted commodity exposure over the next 12 months or longer (up to a maximum of 18 months). Primarily swap contracts are used to manage the associated price risks of commodities.

Interest rate risk
The Company has issued bonds at fixed rates. Interest rate swaps are used to manage the interest rate risk associated with certain debt and generally such swaps are designated as fair value hedges. In addition, from time to time, the Company uses instruments such as interest rate swaps, interest rate futures, bond futures or forward rate agreements to manage interest rate risk arising from the Company's balance sheet structure but does not designate such instruments as hedges.

Equity risk
The Company is exposed to fluctuations in the fair value of its warrant appreciation rights (WARs) issued under its MIP. A WAR gives its holder the right to receive cash equal to the market price of an equivalent listed warrant on the date of exercise. To eliminate such risk, the Company has purchased cash-settled call options, indexed to the shares of the Company, which entitle the Company to receive amounts equivalent to its obligations under the outstanding WARs.

Volume of derivative activity
In general, while the Company's primary objective in its use of derivatives is to minimize exposures arising from its business, certain derivatives are designated and qualify for hedge accounting treatment while others either are not designated or do not qualify for hedge accounting.

Foreign exchange and interest rate derivatives
The gross notional amounts of outstanding foreign exchange and interest rate derivatives (whether designated as hedges or not) were as follows:

Type of derivative	Total notional amounts at		
December 31, ($ in millions)	2016	2015	2014
Foreign exchange contracts	15,353	16,467	18,564
Embedded foreign exchange derivatives	2,162	2,966	3,013
Interest rate contracts	3,021	4,302	2,242

Derivative commodity contracts
The following table shows the notional amounts of outstanding commodity derivatives (whether designated as hedges or not), on a net basis, to reflect the Company's requirements in the various commodities:

Type of derivative	Unit	Total notional amounts at		
December 31,		2016	2015	2014
Copper swaps	metric tonnes	47,425	48,903	46,520
Aluminum swaps	metric tonnes	4,650	5,455	3,846
Nickel swaps	metric tonnes	—	18	—
Lead swaps	metric tonnes	15,100	14,625	6,550
Zinc swaps	metric tonnes	150	225	200
Silver swaps	ounces	1,586,395	1,727,255	1,996,845
Crude oil swaps	barrels	121,000	133,500	128,000

Equity derivatives
At December 31, 2016, 2015 and 2014, the Company held 47 million, 55 million and 61 million cash-settled call options indexed to ABB Ltd shares (conversion ratio 5:1) with a total fair value of $23 million, $13 million and $33 million, respectively.

Cash flow hedges
As noted above, the Company mainly uses forward foreign exchange contracts to manage the foreign exchange risk of its operations, commodity swaps to manage its commodity risks and cash-settled call options to hedge its WAR liabilities. Where such instruments are designated and qualify as cash flow hedges, the effective portion of the changes in their fair value is recorded in "Accumulated other comprehensive loss" and subsequently reclassified into earnings in the same line item and in the same period as the underlying hedged transaction affects earnings. Any ineffectiveness in the hedge relationship, or hedge component excluded from the assessment of effectiveness, is recognized in earnings during the current period.

At December 31, 2016, 2015 and 2014, "Accumulated other comprehensive loss" included net unrealized losses of $1 million, $11 million and $21 million, respectively, net of tax, on derivatives designated as cash flow hedges. Of the amount at December 31, 2016, net gains of $2 million are expected to be reclassified to earnings in 2017. At December 31, 2016, the longest maturity of a derivative classified as a cash flow hedge was 39 months.

In 2016, 2015 and 2014, the amounts of gains or losses, net of tax, reclassified into earnings due to the discontinuance of cash flow hedge accounting and the amount of ineffectiveness in cash flow hedge relationships directly recognized in earnings were not significant.

The pre-tax effects of derivative instruments, designated and qualifying as cash flow hedges, on "Accumulated other comprehensive loss" (OCI) and the Consolidated Income Statements were as follows:

	Gains (losses) recognized in OCI on derivatives (effective portion)				Gains (losses) reclassified from OCI into income (effective portion)		
($ in millions)	2016	2015	2014		2016	2015	2014
Type of derivative				Location			
Foreign exchange contracts	2	(11)	(42)	Total revenues	(11)	(36)	(9)
				Total cost of sales	10	11	8
Commodity contracts	4	(9)	(7)	Total cost of sales	(2)	(10)	(3)
Cash-settled call options	15	(6)	(16)	SG&A expenses[1]	10	(4)	(6)
Total	21	(26)	(65)		7	(39)	(10)

(1) SG&A expenses represent "Selling, general and administrative expenses".

The amounts in respect of gains (losses) recognized in income for hedge ineffectiveness and amounts excluded from effectiveness testing were not significant in 2016, 2015 and 2014.

Net derivative gains of $6 million and net derivative losses of $30 million and $9 million, net of tax, were reclassified from "Accumulated other comprehensive loss" to earnings during 2016, 2015 and 2014, respectively.

Fair value hedges

To reduce its interest rate exposure arising primarily from its debt issuance activities, the Company uses interest rate swaps. Where such instruments are designated as fair value hedges, the changes in the fair value of these instruments, as well as the changes in fair value of the risk component of the underlying debt being hedged, are recorded as offsetting gains and losses in "Interest and other finance expense". Hedge ineffectiveness of instruments designated as fair value hedges in 2016, 2015 and 2014, was not significant.

The effect of Interest rate contracts, designated and qualifying as fair value hedges, on the Consolidated Income Statements was as follows:

($ in millions)	2016	2015	2014
Gains (losses) recognized in Interest and other finance expense:			
— on derivatives designated as fair value hedges	(28)	8	84
— on hedged item	30	(4)	(83)

Derivatives not designated in hedge relationships

Derivative instruments that are not designated as hedges or do not qualify as either cash flow or fair value hedges are economic hedges used for risk management purposes. Gains and losses from changes in the fair values of such derivatives are recognized in the same line in the income statement as the economically hedged transaction.

Furthermore, under certain circumstances, the Company is required to split and account separately for foreign currency derivatives that are embedded within certain binding sales or purchase contracts denominated in a currency other than the functional currency of the subsidiary and the counterparty.

The gains (losses) recognized in the Consolidated Income Statements on derivatives not designated in hedging relationships were as follows:

Type of derivative not designated as a hedge ($ in millions)	Location	Gains (losses) recognized in income 2016	2015	2014
Foreign exchange contracts	Total revenues	(206)	(216)	(533)
	Total cost of sales	(56)	16	19
	SG&A expenses[1]	8	13	2
	Non-order related research and development	(2)	(1)	—
	Other income (expense), net	22	—	—
	Interest and other finance expense	(34)	287	(260)
Embedded foreign exchange contracts	Total revenues	(5)	127	149
	Total cost of sales	(5)	(25)	(27)
	SG&A expenses[1]	(2)	(5)	—
Commodity contracts	Total cost of sales	42	(61)	(28)
Other	Interest and other finance expense	4	(1)	(1)
Total		(234)	134	(679)

The fair values of derivatives included in the Consolidated Balance Sheets were as follows:

December 31, 2016 ($ in millions)	Derivative assets: Current in "Other current assets"	Derivative assets: Non-current in "Other non-current assets"	Derivative liabilities: Current in "Other current liabilities"	Derivative liabilities: Non-current in "Other non-current liabilities"
Derivatives designated as hedging instruments				
Foreign exchange contracts	5	—	6	5
Commodity contracts	2	—	—	—
Interest rate contracts	2	62	—	—
Cash-settled call options	13	9	—	—
Total	22	71	6	5
Derivatives not designated as hedging instruments				
Foreign exchange contracts	169	29	257	77
Commodity contracts	29	2	6	1
Cross-currency interest rate swaps	—	2	—	—
Cash-settled call options	—	1	—	—
Embedded foreign exchange derivatives	58	21	35	18
Total	256	55	298	96
Total fair value	278	126	304	101

December 31, 2015 ($ in millions)	Derivative assets: Current in "Other current assets"	Derivative assets: Non-current in "Other non-current assets"	Derivative liabilities: Current in "Other current liabilities"	Derivative liabilities: Non-current in "Other non-current liabilities"
Derivatives designated as hedging instruments				
Foreign exchange contracts	15	10	8	16
Commodity contracts	—	—	3	—
Interest rate contracts	6	86	—	—
Cash-settled call options	8	5	—	—
Total	29	101	11	16
Derivatives not designated as hedging instruments				
Foreign exchange contracts	172	32	237	81
Commodity contracts	2	—	29	9
Cross-currency interest rate swaps	—	—	—	1
Embedded foreign exchange derivatives	94	53	41	27
Total	268	85	307	118
Total fair value	297	186	318	134

Close-out netting agreements provide for the termination, valuation and net settlement of some or all outstanding transactions between two counterparties on the occurrence of one or more pre-defined trigger events.

Although the Company is party to close-out netting agreements with most derivative counterparties, the fair values in the tables above and in the Consolidated Balance Sheets at December 31, 2016 and 2015, have been presented on a gross basis.

The Company's netting agreements and other similar arrangements allow net settlements under certain conditions. At December 31, 2016 and 2015, information related to these offsetting arrangements was as follows:

December 31, 2016 ($ in millions)					
Type of agreement or similar arrangement	Gross amount of recognized assets	Derivative liabilities eligible for set-off in case of default	Cash collateral received	Non-cash collateral received	Net asset exposure
Derivatives	325	(190)	—	—	135
Reverse repurchase agreements	268	—	—	(268)	—
Total	593	(190)	—	(268)	135

December 31, 2016 ($ in millions)					
Type of agreement or similar arrangement	Gross amount of recognized liabilities	Derivative liabilities eligible for set-off in case of default	Cash collateral pledged	Non-cash collateral pledged	Net liability exposure
Derivatives	352	(190)	—	—	162
Total	352	(190)	—	—	162

December 31, 2015 ($ in millions)					
Type of agreement or similar arrangement	Gross amount of recognized assets	Derivative liabilities eligible for set-off in case of default	Cash collateral received	Non-cash collateral received	Net asset exposure
Derivatives	336	(215)	—	—	121
Reverse repurchase agreements	224	—	—	(224)	—
Total	560	(215)	—	(224)	121

December 31, 2015 ($ in millions)					
Type of agreement or similar arrangement	Gross amount of recognized liabilities	Derivative liabilities eligible for set-off in case of default	Cash collateral pledged	Non-cash collateral pledged	Net liability exposure
Derivatives	384	(215)	(3)	—	166
Total	384	(215)	(3)	—	166

Note 6
Fair values

Recurring fair value measures
The fair values of financial assets and liabilities measured at fair value on a recurring basis were as follows:

December 31, 2016 ($ in millions)	Level 1	Level 2	Level 3	Total fair value
Assets				
Available-for-sale securities in "Marketable securities and short-term investments":				
Equity securities	—	541	—	541
Debt securities — U.S. government obligations	220	—	—	220
Debt securities — Other government obligations	—	2	—	2
Debt securities — Corporate	—	95	—	95
Derivative assets — current in "Other current assets"	—	278	—	278
Derivative assets — non-current in "Other non-current assets"	—	126	—	126
Total	220	1,042	—	1,262
Liabilities				
Derivative liabilities — current in "Other current liabilities"	—	304	—	304
Derivative liabilities — non-current in "Other non-current liabilities"	—	101	—	101
Total	—	405	—	405

December 31, 2015 ($ in millions)	Level 1	Level 2	Level 3	Total fair value
Assets				
Available-for-sale securities in "Cash and equivalents":				
Debt securities — Corporate	—	11	—	11
Available-for-sale securities in "Marketable securities and short-term investments":				
Equity securities	—	667	—	667
Debt securities — U.S. government obligations	121	—	—	121
Debt securities — Other government obligations	—	2	—	2
Debt securities — Corporate	—	508	—	508
Derivative assets — current in "Other current assets"	1	296	—	297
Derivative assets — non-current in "Other non-current assets"	—	186	—	186
Total	122	1,670	—	1,792
Liabilities				
Derivative liabilities — current in "Other current liabilities"	3	315	—	318
Derivative liabilities — non-current in "Other non-current liabilities"	—	134	—	134
Total	3	449	—	452

The Company uses the following methods and assumptions in estimating fair values of financial assets and liabilities measured at fair value on a recurring basis:

- Available-for-sale securities in "Cash and equivalents" and "Marketable securities and short-term investments": If quoted market prices in active markets for identical assets are available, these are considered Level 1 inputs; however, when markets are not active, these inputs are considered Level 2. If such quoted market prices are not available, fair value is determined using market prices for similar assets or present value techniques, applying an appropriate risk-free interest rate adjusted for nonperformance risk. The inputs used in present value techniques are observable and fall into the Level 2 category.

- Derivatives: The fair values of derivative instruments are determined using quoted prices of identical instruments from an active market, if available (Level 1 inputs). If quoted prices are not available, price quotes for similar instruments, appropriately adjusted, or present value techniques, based on available market data, or option pricing models are used. Cash-settled call options hedging the Company's WAR liability are valued based on bid prices of the equivalent listed warrant. The fair values obtained using price quotes for similar instruments or valuation techniques represent a Level 2 input unless significant unobservable inputs are used.

Non-recurring fair value measures

There were no significant non-recurring fair value measurements during 2016 and 2015.

Disclosure about financial instruments carried on a cost basis

The fair values of financial instruments carried on a cost basis were as follows:

December 31, 2016 ($ in millions)	Carrying value	Level 1	Level 2	Level 3	Total fair value
Assets					
Cash and equivalents (excluding available-for-sale securities with original maturities up to 3 months):					
Cash	1,704	1,704	—	—	1,704
Time deposits	1,940	—	1,940	—	1,940
Marketable securities and short-term investments (excluding available-for-sale securities):					
Time deposits	824	—	824	—	824
Receivables under reverse repurchase agreements	268	—	268	—	268
Other short-term investments	3	3	—	—	3
Other non-current assets:					
Loans granted	30	—	31	—	31
Held-to-maturity securities	80	—	86	—	86
Restricted cash and cash deposits	91	59	42	—	101
Liabilities					
Short-term debt and current maturities of long-term debt (excluding capital lease obligations)	980	856	124	—	980
Long-term debt (excluding capital lease obligations)	5,709	5,208	784	—	5,992
Non-current deposit liabilities in "Other non-current liabilities"	106	—	124	—	124

December 31, 2015 ($ in millions)	Carrying value	Level 1	Level 2	Level 3	Total fair value
Assets					
Cash and equivalents (excluding available-for-sale securities with original maturities up to 3 months):					
Cash	1,837	1,837	—	—	1,837
Time deposits	2,717	—	2,717	—	2,717
Marketable securities and short-term investments (excluding available-for-sale securities):					
Time deposits	104	—	104	—	104
Receivables under reverse repurchase agreements	224	—	224	—	224
Other short-term investments	7	7	—	—	7
Other non-current assets:					
Loans granted	29	—	30	—	30
Held-to-maturity securities	99	—	110	—	110
Restricted cash and cash deposits	176	55	138	—	193
Liabilities					
Short-term debt and current maturities of long-term debt (excluding capital lease obligations)	1,427	614	817	—	1,431
Long-term debt (excluding capital lease obligations)	5,889	5,307	751	—	6,058
Non-current deposit liabilities in "Other non-current liabilities"	215	—	244	—	244

The Company uses the following methods and assumptions in estimating fair values of financial instruments carried on a cost basis:

- Cash and equivalents (excluding available-for-sale securities with original maturities up to 3 months), and Marketable securities and short-term investments (excluding available-for-sale securities): **The carrying amounts approximate the fair values as the items are short-term in nature.**

- Other non-current assets: **Includes (i) loans granted whose fair values are based on the carrying amount adjusted using a present value technique to reflect a premium or discount based on current market interest rates (Level 2 inputs), (ii) held-to-maturity securities (see Note 4) whose fair values are based on quoted market prices in inactive markets (Level 2 inputs), (iii) restricted cash whose fair**

values approximate the carrying amounts (Level 1 inputs) and restricted cash deposits pledged in respect of certain non-current deposit liabilities whose fair values are determined using a discounted cash flow methodology based on current market interest rates (Level 2 inputs).

- Short-term debt and current maturities of long-term debt (excluding capital lease obligations): Short-term debt includes commercial paper, bank borrowings and overdrafts. The carrying amounts of short-term debt and current maturities of long-term debt, excluding capital lease obligations, approximate their fair values.

- Long-term debt (excluding capital lease obligations): Fair values of bonds are determined using quoted market prices (Level 1 inputs), if available. For bonds without available quoted market prices and other long-term debt, the fair values are determined using a discounted cash flow methodology based upon borrowing rates of similar debt instruments and reflecting appropriate adjustments for non-performance risk (Level 2 inputs).

- Non-current deposit liabilities in "Other non-current liabilities": The fair values of non-current deposit liabilities are determined using a discounted cash flow methodology based on risk-adjusted interest rates (Level 2 inputs).

Note 7
Receivables, net

"Receivables, net" consisted of the following:

December 31, ($ in millions)	2016	2015
Trade receivables	7,293	7,197
Other receivables	587	665
Allowance	(314)	(258)
	7,566	7,604
Unbilled receivables, net		
Costs and estimated profits in excess of billings	3,058	3,385
Advance payments consumed	(928)	(928)
	2,130	2,457
Total	9,696	10,061

"Trade receivables" in the table above includes contractual retention amounts billed to customers of $463 million and $545 million at December 31, 2016 and 2015, respectively. Management expects that the substantial majority of related contracts will be completed and the substantial majority of the billed amounts retained by the customer will be collected. Of the retention amounts outstanding at December 31, 2016, 65 percent and 21 percent are expected to be collected in 2017 and 2018, respectively.

"Other receivables" in the table above consists of value added tax, claims, rental deposits and other non-trade receivables.

"Costs and estimated profits in excess of billings" in the table above represents revenues earned and recognized for contracts under the percentage-of-completion or completed-contract method of accounting. Management expects that the majority of the amounts will be collected within one year of the respective balance sheet date.

The reconciliation of changes in the allowance for doubtful accounts is as follows:

($ in millions)	2016	2015	2014
Balance at January 1,	258	279	317
Additions	163	118	103
Deductions	(96)	(113)	(118)
Exchange rate differences	(11)	(26)	(23)
Balance at December 31,	314	258	279

Note 8
Inventories, net

"Inventories, net" consisted of the following:

December 31, ($ in millions)	2016	2015
Raw materials	1,692	1,793
Work in process	1,326	1,574
Finished goods	1,369	1,442
Advances to suppliers	149	188
	4,536	4,997
Advance payments consumed	(189)	(240)
Total	4,347	4,757

"Work in process" in the table above contains inventoried costs relating to long-term contracts of $212 million and $411 million at December 31, 2016 and 2015, respectively. "Advance payments consumed" in the table above relates to contractual advances received from customers on work in process.

Note 9
Other non-current assets

"Other non-current assets" consisted of the following:

December 31, ($ in millions)	2016	2015
Pledged financial assets	112	220
Derivatives (including embedded derivatives) (see Note 5)	126	186
Investments	57	58
Restricted cash	59	55
Other	178	124
Total	532	643

The Company entered into structured leasing transactions with U.S. investors prior to 1999. At the inception of the leasing arrangements the Company placed certain amounts in restricted cash deposits and held-to-maturity debt securities. These amounts, included as "Pledged financial assets" in the table above, are pledged as security for certain outstanding deposit liabilities included in "Other non-current liabilities" (see Note 13) and the funds received upon maturity of the respective pledged financial assets will only be available to the Company for repayment of these obligations.

"Investments" represents shares and other equity investments carried at cost.

Note 10
Property, plant and equipment, net

"Property, plant and equipment, net" consisted of the following:

December 31, ($ in millions)	2016	2015
Land and buildings	3,786	4,003
Machinery and equipment	7,368	7,554
Construction in progress	515	559
	11,669	12,116
Accumulated depreciation	(6,926)	(6,840)
Total	4,743	5,276

Assets under capital leases included in "Property, plant and equipment, net" were as follows:

December 31, ($ in millions)	2016	2015
Land and buildings	120	149
Machinery and equipment	47	53
	167	202
Accumulated depreciation	(82)	(113)
Total	85	89

In 2016, 2015 and 2014, depreciation, including depreciation of assets under capital leases, was $767 million, $764 million and $851 million, respectively.

Note 11
Goodwill and other intangible assets

Effective January 1, 2016, the Company reorganized its operating segments with the aim of delivering more customer value in a better, more focused way from its combined power and automation offering. The new Electrification Products segment includes the business of the former Low Voltage Products segment and the Medium Voltage Products business from the former Power Products segment. The Process Automation segment has been expanded to include the Distributed Control Systems business from the former Power Systems segment, while the remaining businesses of the former Power Products and Power Systems segments were combined to form the new Power Grids segment. There were no significant changes to the Discrete Automation and Motion segment. The table below has been reclassified to reflect this reorganization.

Changes in "Goodwill" were as follows:

($ in millions)	Electrification Products	Discrete Automation and Motion	Process Automation	Power Grids	Corporate and Other	Total
Cost at January 1, 2015	2,970	3,766	1,546	1,748	41	10,071
Accumulated impairment charges	—	—	—	—	(18)	(18)
Balance at January 1, 2015	2,970	3,766	1,546	1,748	23	10,053
Goodwill acquired during the year	4	24	6	—	—	34
Goodwill allocated to disposals	—	—	—	(23)	(1)	(24)
Exchange rate differences and other	(203)	(92)	(34)	(62)	(1)	(392)
Balance at December 31, 2015	2,771	3,698	1,518	1,663	21	9,671
Goodwill acquired during the year	—	12	—	—	—	12
Goodwill allocated to assets held for sale	—	—	—	(105)	—	(105)
Exchange rate differences and other	(4)	(49)	(13)	(11)	—	(77)
Balance at December 31, 2016	2,767	3,661	1,505	1,547	21	9,501

In 2016, goodwill allocated to the Cables business, within the Power Grids operating segment, was transferred to "Assets held for sale", see Note 3 for details.

In 2015, there were no significant acquisitions or divestments.

Intangible assets other than goodwill consisted of the following:

	2016			2015		
December 31, ($ in millions)	Gross carrying amount	Accumulated amortization	Net carrying amount	Gross carrying amount	Accumulated amortization	Net carrying amount
Capitalized software for internal use	712	(596)	116	692	(567)	125
Capitalized software for sale	409	(365)	44	401	(357)	44
Intangibles other than software						
Customer-related	2,500	(904)	1,596	2,517	(767)	1,750
Technology-related	755	(660)	95	790	(585)	205
Marketing-related	291	(159)	132	308	(140)	168
Other	34	(21)	13	67	(22)	45
Total	4,701	(2,705)	1,996	4,775	(2,438)	2,337

Additions to intangible assets other than goodwill consisted of the following:

($ in millions)	2016	2015
Capitalized software for internal use	39	63
Capitalized software for sale	18	15
Intangibles other than software		
Technology-related	1	33
Total	58	111

There were no significant intangible assets acquired in business combinations during 2016 and 2015.

Amortization expense of intangible assets other than goodwill consisted of the following:

($ in millions)	2016	2015	2014
Capitalized software for internal use	57	60	72
Capitalized software for sale	25	21	20
Intangibles other than software	287	315	362
Total	369	396	454

In 2016, 2015 and 2014, impairment charges on intangible assets other than goodwill were not significant.

At December 31, 2016, future amortization expense of intangible assets other than goodwill is estimated to be:

($ in millions)	
2017	284
2018	233
2019	189
2020	170
2021	145
Thereafter	975
Total	1,996

Note 12
Debt

The Company's total debt at December 31, 2016 and 2015, amounted to $6,803 million and $7,439 million, respectively.

Short-term debt and current maturities of long-term debt
The Company's "Short-term debt and current maturities of long-term debt" consisted of the following:

December 31, ($ in millions)	2016	2015
Short-term debt (weighted-average interest rate of 3.3 % and 4.2 %, respectively)	135	278
Current maturities of long-term debt (weighted-average nominal interest rate of 2.8 % and 2.0 %, respectively)	868	1,176
Total	1,003	1,454

Short-term debt primarily represents short-term loans from various banks and issued commercial paper.

At December 31, 2016, the Company had in place two commercial paper programs: a $2 billion Euro-commercial paper program for the issuance of commercial paper in a variety of currencies, and a $2 billion commercial paper program for the private placement of U.S. dollar denominated commercial paper in the United States. At December 31, 2016 and 2015, $57 million and $132 million, respectively, was outstanding under the $2 billion program in the United States.

In addition, during 2016, the Company exercised its option to further extend the maturity of its $2 billion multicurrency revolving credit facility to 2021. The facility is for general corporate purposes. Interest costs on drawings under the facility are LIBOR or EURIBOR (depending on the currency of the drawings) plus a margin of 0.20 percent, while commitment fees (payable on the unused portion of the facility) amount to 35 percent of the margin, which represents commitment fees of 0.07 percent per annum. Utilization fees, payable on drawings, amount to 0.075 percent per annum on drawings up to one-third of the facility, 0.15 percent per annum on drawings in excess of one-third but less than or equal to two-thirds of the facility, or 0.30 percent per annum on drawings over two-thirds of the facility. No amount was drawn at December 31, 2016 and 2015. The facility contains cross-default clauses whereby an event of default would occur if the Company were to default on indebtedness as defined in the facility, at or above a specified threshold.

Long-term debt
The Company utilizes derivative instruments to modify the interest characteristics of its long-term debt. In particular, the Company uses interest rate swaps to effectively convert certain fixed-rate long-term debt into floating rate obligations. The carrying value of debt, designated as being hedged by fair value hedges, is adjusted for changes in the fair value of the risk component of the debt being hedged.

The following table summarizes the Company's long-term debt considering the effect of interest rate swaps. Consequently, a fixed-rate debt subject to a fixed-to-floating interest rate swap is included as a floating rate debt in the table below:

	2016			2015		
December 31, ($ in millions, except % data)	Balance	Nominal rate	Effective rate	Balance	Nominal rate	Effective rate
Floating rate	1,745	2.0 %	1.3 %	2,285	2.7 %	0.8 %
Fixed rate	4,923	2.9 %	2.9 %	4,876	3.2 %	3.2 %
	6,668			7,161		
Current portion of long-term debt	(868)	2.8 %	2.4 %	(1,176)	2.0 %	1.4 %
Total	5,800			5,985		

At December 31, 2016, the principal amounts of long-term debt repayable (excluding capital lease obligations) at maturity were as follows:

($ in millions)	
2017	843
2018	379
2019	1,321
2020	4
2021	1,251
Thereafter	2,736
Total	6,534

Details of the Company's outstanding bonds were as follows:

	2016			2015		
December 31, (in millions)	Nominal outstanding		Carrying value[1]	Nominal outstanding		Carrying value[1]
Bonds:						
2.5% USD Notes, due 2016			—	USD 600		$ 599
1.25% CHF Bonds, due 2016			—	CHF 500		$ 510
1.625% USD Notes, due 2017	USD	500	$ 500	USD 500		$ 499
4.25% AUD Notes, due 2017	AUD	400	$ 291	AUD 400		$ 297
1.50% CHF Bonds, due 2018	CHF	350	$ 342	CHF 350		$ 352
2.625% EUR Instruments, due 2019	EUR	1,250	$ 1,311	EUR 1,250		$ 1,363
4.0% USD Notes, due 2021	USD	650	$ 643	USD 650		$ 641
2.25% CHF Bonds, due 2021	CHF	350	$ 368	CHF 350		$ 383
5.625% USD Notes, due 2021	USD	250	$ 274	USD 250		$ 279
2.875% USD Notes, due 2022	USD	1,250	$ 1,261	USD 1,250		$ 1,275
0.625% EUR Notes, due 2023	EUR	700	$ 732			—
4.375% USD Notes, due 2042	USD	750	$ 722	USD 750		$ 722
Total			$ 6,444			$ 6,920

[1] USD [illegible] net of unamortized debt issuance [illegible] net of debt discounts or premiums, as well as adjustments for fair value hedge accounting [illegible]

During 2016, the Company repaid at maturity the 2.5% USD Notes, due 2016, and the 1.25% CHF Bonds, due 2016. The Company had entered into interest rate swaps to hedge its interest obligation on the 1.25% CHF Bonds, due 2016. After considering the impact of such swaps, these bonds effectively became floating rate Swiss franc obligations and consequently have been shown as floating rate debt at December 31, 2015, in the table of long-term debt above.

The 4.0% USD Notes, due 2021, pay interest semi-annually in arrears, at a fixed annual rate of 4.0 percent, respectively. The Company may redeem these notes prior to maturity, in whole or in part, at the greater of (i) 100 percent of the principal amount of the notes to be redeemed and (ii) the sum of the present values of remaining scheduled payments of principal and interest (excluding interest accrued to the redemption date) discounted to the redemption date at a rate defined in the note terms, plus interest accrued at the redemption date.

The 2.25% CHF Bonds, due 2021, pay interest annually in arrears, at a fixed annual rate of 2.25 percent, respectively. The Company has the option to redeem the bonds prior to maturity, in whole, at par plus accrued interest, if 85 percent of the aggregate principal amount of the bonds has been redeemed or purchased and cancelled. The Company entered into interest rate swaps to hedge its interest obligations on these bonds. After considering the impact of such swaps, these bonds effectively became floating rate Swiss franc obligations and consequently have been shown as floating rate debt in the table of long-term debt above.

The 1.50% CHF Bonds, due 2018, pay interest annually in arrears at a fixed annual rate of 1.5 percent. The Company has the option to redeem the bonds prior to maturity, in whole, at par plus accrued interest, if 85 percent of the aggregate principal amount of the bonds has been redeemed or purchased and cancelled.

The 2.625% EUR Instruments, due 2019, pay interest annually in arrears at a fixed rate of 2.625 percent per annum.

The 1.625% USD Notes, due 2017, pay interest semi-annually in arrears at a fixed annual rate of 1.625 percent. The 2.875% USD Notes, due 2022, pay interest semi-annually in arrears at a fixed annual rate of 2.875 percent. The 4.375% USD Notes, due 2042, pay interest semi-annually in arrears at a fixed annual rate of 4.375 percent. The Company may redeem any of these notes prior to maturity, in whole or in part, at the greater of (i) 100 percent of the principal amount of the notes to be redeemed and (ii) the sum of the present values of remaining scheduled payments of principal and interest (excluding interest accrued to the redemption date) discounted to the redemption date at a rate defined in the note terms, plus interest accrued at the redemption date. These notes, registered with the U.S. Securities and Exchange Commission, were issued by ABB Finance (USA) Inc., a 100 percent owned finance subsidiary, and were fully and unconditionally guaranteed by ABB Ltd. There are no significant restrictions on the ability of the parent company to obtain funds from its subsidiaries by dividend or loan. In reliance on Rule 3-10 of Regulation S-X, the separate financial statements of ABB Finance (USA) Inc. are not provided. The Company has entered into interest rate swaps for an aggregate nominal amount of $1,050 million to partially hedge its interest obligations on the 2.875% USD Notes, due 2022. After considering the impact of such swaps, $1,050 million of the outstanding principal is shown as floating rate debt in the table of long-term debt above.

The 5.625% USD Notes, due 2021, pay interest semi-annually in arrears at a fixed annual rate of 5.625 percent. The Company has the option to redeem the notes prior to maturity at the greater of (i) 100 percent of the principal amount of the notes to be redeemed, and (ii) the sum of the present values of remaining scheduled payments of principal and interest (excluding interest accrued to the redemption date) discounted to the redemption date at a rate defined in the note terms, plus interest accrued at the redemption date.

The 4.25% AUD Notes, due 2017, pay fixed interest of 4.25 percent semi-annually in arrears. The Company entered into interest rate swaps to hedge its interest obligations on these bonds. After considering the impact of such swaps, these bonds effectively became floating rate Australian dollar obligations and consequently have been shown as floating rate debt in the table of long-term debt above.

In May 2016, the Company issued notes with an aggregate principal of EUR 700 million, due 2023. The notes pay interest annually in arrears at a fixed rate of 0.625 percent per annum. The Company recorded net proceeds of EUR 697 million (equivalent to approximately $807 million on date of issuance).

The Company's bonds contain cross-default clauses which would allow the bondholders to demand repayment if the Company were to default on any borrowing at or above a specified threshold. Furthermore, all such bonds constitute unsecured obligations of the Company and rank pari passu with other debt obligations.

In addition to the bonds described above, included in long-term debt at December 31, 2016 and 2015, are capital lease obligations, bank borrowings of subsidiaries and other long-term debt, none of which is individually significant.

Note 13
Other provisions, other current liabilities and other non-current liabilities

"Other Provisions" consisted of the following:

December 31, ($ in millions)	2016	2015
Contract-related provisions	673	724
Restructuring and restructuring-related provisions	577	538
Provisions for contractual penalties and compliance and litigation matters	210	220
Provision for insurance-related reserves	153	190
Other	152	248
Total	1,765	1,920

"Other current liabilities" consisted of the following:

December 31, ($ in millions)	2016	2015
Employee-related liabilities	1,670	1,709
Accrued expenses	413	457
Non-trade payables	394	319
Derivative liabilities (see Note 5)	304	318
Other tax liabilities	301	271
Income taxes payable	226	240
Accrued customer rebates	206	161
Deferred income	147	156
Accrued interest	67	67
Pension and other employee benefits (see Note 17)	59	66
Other	149	53
Total	3,936	3,817

"Other non-current liabilities" consisted of the following:

December 31, ($ in millions)	2016	2015
Income tax related liabilities	923	851
Non-current deposit liabilities (see Note 9)	106	215
Derivative liabilities (see Note 5)	101	134
Deferred income	80	85
Employee-related liabilities	66	66
Environmental provisions	62	86
Provisions for contractual penalties and compliance and litigation matters	27	31
Other	239	182
Total	1,604	1,650

Note 14
Leases

The Company's lease obligations primarily relate to real estate and office equipment. Rent expense was $459 million, $497 million and $558 million in 2016, 2015 and 2014, respectively. Sublease income received by the Company on leased assets was $13 million, $13 million and $17 million in 2016, 2015 and 2014, respectively.

At December 31, 2016, future net minimum lease payments for operating leases, having initial or remaining non-cancelable lease terms in excess of one year, consisted of the following:

($ in millions)	
2017	382
2018	304
2019	248
2020	205
2021	166
Thereafter	243
	1,548
Sublease income	(24)
Total	1,524

At December 31, 2016, the future net minimum lease payments for capital leases and the present value of the net minimum lease payments consisted of the following:

($ in millions)	
2017	30
2018	25
2019	23
2020	18
2021	13
Thereafter	68
Total minimum lease payments	177
Less amount representing estimated executory costs included in total minimum lease payments	(1)
Net minimum lease payments	176
Less amount representing interest	(62)
Present value of minimum lease payments	114

Minimum lease payments have not been reduced by minimum sublease rentals due in the future under non-cancelable subleases. Such minimum sublease rentals were not significant. The present value of minimum lease payments is included in "Short-term debt and current maturities of long-term debt" or "Long-term debt" in the Consolidated Balance Sheets.

Note 15
Commitments and contingencies

Contingencies — Regulatory, Compliance and Legal

Antitrust

In April 2014, the European Commission announced its decision regarding its investigation of anticompetitive practices in the cables industry and granted the Company full immunity from fines under the European Commission's leniency program. In December 2013, the Company agreed with the Brazilian Antitrust Authority (CADE) to settle its ongoing investigation into the Company's involvement in anticompetitive practices in the cables industry and the Company agreed to pay a fine of approximately 1.5 million Brazilian reals (equivalent to approximately $1 million on date of payment).

In Brazil, the Company's Gas Insulated Switchgear business is under investigation by the CADE for alleged anticompetitive practices. In addition, the CADE has opened an investigation into certain other power businesses of the Company, including flexible alternating current transmission systems (FACTS) and power transformers. With respect to these matters, management is cooperating fully with the authorities. An informed judgment about the outcome of these investigations or the amount of potential loss or range of loss for the Company, if any, relating to these investigations cannot be made at this stage.

Suspect payments

As a result of an internal investigation, the Company self-reported to the Securities and Exchange Commission (SEC) and the Department of Justice (DoJ) in the United States as well as to the Serious Fraud Office (SFO) in the United Kingdom concerning certain of its past dealings with Unaoil and its subsidiaries, including alleged improper payments made by these entities to third parties. The SFO has commenced an investigation into this matter. The Company is cooperating fully with the authorities. At this time, it is not possible for the Company to make an informed judgment about the outcome of these matters.

General

In addition, the Company is aware of proceedings, or the threat of proceedings, against it and others in respect of private claims by customers and other third parties with regard to certain actual or alleged anticompetitive practices. Also, the Company is subject to other various legal proceedings, investigations, and claims that have not yet been resolved. With respect to the above-mentioned regulatory matters and commercial litigation contingencies, the Company will bear the costs of the continuing investigations and any related legal proceedings.

Liabilities recognized

At December 31, 2016 and 2015, the Company had aggregate liabilities of $150 million and $160 million, respectively, included in "Other provisions" and "Other non-current liabilities", for the above regulatory, compliance and legal contingencies, and none of the individual liabilities recognized was significant. As it is not possible to make an informed judgment on the outcome of certain matters and as it is not possible, based on information currently available to management, to estimate the maximum potential liability on other matters, there could be material adverse outcomes beyond the amounts accrued.

Guarantees

General

The following table provides quantitative data regarding the Company's third-party guarantees. The maximum potential payments represent a "worst-case scenario", and do not reflect management's expected outcomes.

	Maximum potential payments	
December 31, ($ in millions)	2016	2015
Performance guarantees	193	209
Financial guarantees	69	77
Indemnification guarantees	71	50
Total	333	336

The carrying amount of liabilities recorded in the Consolidated Balance Sheets reflects the Company's best estimate of future payments, which it may incur as part of fulfilling its guarantee obligations. In respect of the above guarantees, the carrying amounts of liabilities at December 31, 2016 and 2015, were not significant.

The Company is party to various guarantees providing financial or performance assurances to certain third parties. These guarantees, which have various maturities up to 2020, mainly consist of performance guarantees whereby (i) the Company guarantees the performance of a third party's product or service according to the terms of a contract and (ii) as member of a consortium that includes third parties, the Company guarantees not only its own performance but also the work of third parties. Such guarantees may include guarantees that a project will be completed within a specified time. If the third party does not fulfill the obligation, the Company will compensate the guaranteed party in cash or in kind. The original maturity dates for the majority of these performance guarantees range from one to six years.

Commercial commitments

In addition, in the normal course of bidding for and executing certain projects, the Company has entered into standby letters of credit, bid/performance bonds and surety bonds (collectively "performance bonds") with various financial institutions. Customers can draw on such performance bonds in the event that the Company does not fulfill its contractual obligations. The Company would then have an obligation to reimburse the financial institution for amounts paid under the performance bonds. At December 31, 2016 and 2015, the total outstanding performance bonds aggregated to $7.9 billion and $9.5 billion, respectively. There have been no significant amounts reimbursed to financial institutions under these types of arrangements in 2016, 2015 and 2014.

Product and order-related contingencies

The Company calculates its provision for product warranties based on historical claims experience and specific review of certain contracts.

The reconciliation of the "Provisions for warranties", including guarantees of product performance, was as follows:

($ in millions)	2016	2015	2014
Balance at January 1,	1,089	1,148	1,362
Net change in warranties due to acquisitions and divestments	—	—	11
Claims paid in cash or in kind	(329)	(357)	(319)
Net increase in provision for changes in estimates, warranties issued and warranties expired	424	377	224
Exchange rate differences	(42)	(79)	(130)
Balance at December 31,	1,142	1,089	1,148

During 2016, the Company determined that the provision for product warranties in its solar business, acquired in 2013 as part of the purchase of Power-One, was no longer sufficient to cover expected warranty costs in the remaining warranty period. Due to higher than originally expected product failure rates for certain solar inverters designed and manufactured by Power-One, a substantial portion of which relates to products which were delivered to customers prior to the acquisition date, the previously estimated product warranty provision was increased by a total of $151 million during the year. The corresponding increases were included in Cost of sales of products and resulted in a decrease in basic and diluted earnings per share of $0.06 and $0.05, respectively, for 2016. As $131 million relates to products which were sold prior to the acquisition date these costs have been excluded from the Company's measure of segment profit, Operational EBITA (see Note 23). This increase in warranty provision is based upon the information presently available and therefore is subject to change in the future.

The information for 2015 contained in the table above has been adjusted to correct a classification difference between Claims paid in cash and kind and Net effect of changes in estimates, warranties issued and warranties expired.

Related party transactions
The Company conducts business with certain companies where members of the Company's Board of Directors or Executive Committee act, or in recent years have acted, as directors or senior executives. The Company's Board of Directors has determined that the Company's business relationships with those companies do not constitute material business relationships. This determination was made in accordance with the Company's related party transaction policy which was prepared based on the Swiss Code of Best Practice and the independence criteria set forth in the corporate governance rules of the New York Stock Exchange.

Note 16
Taxes

"Provision for taxes" consisted of the following:

($ in millions)	2016	2015	2014
Current taxes	925	1,005	1,130
Deferred taxes	(144)	(217)	72
Tax expense from continuing operations	781	788	1,202
Tax expense (benefit) from discontinued operations	(4)	(2)	1

Tax expense from continuing operations is reconciled below from the Company's weighted-average global tax rate (rather than from the Swiss domestic statutory tax rate) as the parent company of the ABB Group, ABB Ltd, is domiciled in Switzerland and income generated in jurisdictions outside of Switzerland (hereafter "foreign jurisdictions") which has already been subject to corporate income tax in those foreign jurisdictions is, to a large extent, tax exempt in Switzerland. There is no requirement in Switzerland for any parent company of a group to file a tax return of the consolidated group determining domestic and foreign pre-tax income. As the Company's consolidated income from continuing operations is predominantly earned outside of Switzerland, corporate income tax in foreign jurisdictions largely determines the weighted-average global tax rate of the Company.

The reconciliation of "Tax expense from continuing operations" at the weighted-average tax rate to the effective tax rate is as follows:

($ in millions, except % data)	2016	2015	2014
Income from continuing operations before taxes	2,799	2,840	3,896
Weighted-average global tax rate	21.2 %	21.8 %	23.8 %
Income taxes at weighted-average tax rate	594	619	929
Items taxed at rates other than the weighted-average tax rate	27	(36)	146
Impact of non-deductible goodwill allocated to divested businesses	—	9	77
Changes in valuation allowance, net	(17)	57	52
Effects of changes in tax laws and enacted tax rates	42	—	(52)
Non-deductible expenses, excluding goodwill	86	52	45
Other, net	49	87	5
Tax expense from continuing operations	781	788	1,202
Effective tax rate for the year	27.9 %	27.7 %	30.9 %

In 2015, the benefit reported in "Items taxed at rates other than the weighted-average tax rate" predominantly included $50 million related to tax credits arising from research and development activities. In 2014 the expense reported in "Items taxed at rates other than the weighted-average tax rate" predominantly related to tax credits arising in foreign jurisdictions for which the technical merits did not allow a benefit to be taken.

In 2016, 2015 and 2014, "Changes in valuation allowance, net" included reductions in valuation allowances recorded in certain jurisdictions where the Company determined that it was more likely than not that such deferred tax assets (recognized for net operating losses and temporary differences in those jurisdictions) would be realized, as well as increases in the valuation allowance in certain other jurisdictions. In 2015, the "Changes in valuation allowance, net" included an expense of $21 million related to certain of the Company's operations in Asia and in 2014, the "Changes in valuation allowance, net" included an expense of $31 million related to certain of the Company's operations in South America.

In 2016 the "Effects of change in tax laws and enacted tax rates" included an expense of $16 million related to certain of the Company's operations in Europe. In 2014, the "Effects of change in tax laws and enacted tax rates" included a benefit of $62 million related to enacted changes in double tax treaties.

In 2016, 2015 and 2014, "Non-deductible expenses" of $86 million, of $52 million and $45 million, respectively, included expenses in relation to items that were deducted for financial accounting purposes, but were not tax deductible, such as interest expense, local taxes on productive activities, disallowed meals and entertainment expenses and other similar items.

In 2016, "Other, net" of $49 million included a net charge of $50 million due to the interpretation of tax law and double tax treaty agreements by competent tax authorities. In 2015, "Other, net" of $87 million included a net charge of $74 million due to the interpretation of tax law and double tax treaty agreements by competent tax authorities.

In 2014, "Provision for taxes" included $279 million relating to income taxes recorded on $543 million of net gains from sale of businesses. This expense is primarily included in "Income taxes at weighted-average tax rate" and "Impact of non-deductible goodwill allocated to divested businesses".

Deferred income tax assets and liabilities consisted of the following:

December 31, ($ in millions)	2016	2015
Deferred tax assets		
Unused tax losses and credits	514	623
Provisions and other accrued liabilities	865	887
Pension	507	528
Inventories	273	267
Property, plant and equipment and other non-current assets	266	282
Other	93	89
Total gross deferred tax asset	**2,518**	**2,676**
Valuation allowance	(561)	(606)
Total gross deferred tax asset, net of valuation allowance	**1,957**	**2,070**
Deferred tax liabilities		
Property, plant and equipment	(234)	(279)
Intangibles and other non-current assets	(616)	(721)
Pension and other accrued liabilities	(79)	(143)
Inventories	(91)	(91)
Other current assets	(108)	(139)
Unremitted earnings	(537)	(523)
Other	(92)	(84)
Total gross deferred tax liability	**(1,757)**	**(1,980)**
Net deferred tax asset (liability)	**200**	**90**
Included in		
"Deferred taxes" — current assets	888	881
"Deferred taxes" — non-current assets	527	423
"Deferred taxes" — current liabilities	(258)	(249)
"Deferred taxes" — non-current liabilities	(957)	(965)
Net deferred tax asset (liability)	**200**	**90**

Certain entities have deferred tax assets related to net operating loss carry-forwards and other items. As recognition of these assets in certain entities did not meet the more likely than not criterion, valuation allowances have been recorded and amount to $561 million and $606 million, at December 31, 2016 and 2015, respectively. "Unused tax losses and credits" at December 31, 2016 and 2015, in the table above, included $108 million and $127 million, respectively, for which the Company has established a full valuation allowance as, due to limitations imposed by the relevant tax law, the Company determined that, more likely than not, such deferred tax assets would not be realized.

At December 31, 2016 and 2015, deferred tax liabilities totaling $537 million and $523 million, respectively, have been provided for primarily in respect of withholding taxes, dividend distribution taxes or additional corporate income taxes (hereafter "withholding taxes") on unremitted earnings which will be payable in foreign jurisdictions on the repatriation of earnings to Switzerland. Income which has been generated outside of Switzerland and has already been subject to corporate income tax in such foreign jurisdictions is, to a large extent, tax exempt in Switzerland. Therefore, generally no or only limited Swiss income tax has to be provided for on the repatriated earnings of foreign subsidiaries.

Certain countries levy withholding taxes on dividend distributions. Such taxes cannot always be fully reclaimed by the shareholder, although they have to be declared and withheld by the subsidiary. In 2016 and 2015, certain taxes arose in certain foreign jurisdictions for which the technical merits do not allow utilization of benefits. At December 31, 2016 and 2015, foreign subsidiary retained earnings subject to withholding taxes upon distribution of approximately $100 million and $500 million, respectively, were considered as permanently reinvested, as these funds are used for financing current operations as well as business growth through working capital and capital expenditure in those countries and, consequently, no deferred tax liability was recorded.

At December 31, 2016, net operating loss carry-forwards of $1,622 million and tax credits of $125 million were available to reduce future taxes of certain subsidiaries. Of these amounts, $846 million of loss carry-forwards and $101 million of tax credits will expire in varying amounts through 2036. The largest amount of these carry-forwards related to the Company's Europe operations.

Unrecognized tax benefits consisted of the following:

($ in millions)	Unrecognized tax benefits	Penalties and interest related to unrecognized tax benefits	Total
Classification as unrecognized tax items on January 1, 2014	733	154	887
Net change due to acquisitions and divestments	(3)	1	(2)
Increase relating to prior year tax positions	25	39	64
Decrease relating to prior year tax positions	(24)	(7)	(31)
Increase relating to current year tax positions	85	—	85
Decrease relating to current year tax positions	(1)	—	(1)
Decrease due to settlements with tax authorities	(19)	(10)	(29)
Decrease as a result of the applicable statute of limitations	(36)	(19)	(55)
Exchange rate differences	(55)	(12)	(67)
Balance at December 31, 2014, which would, if recognized, affect the effective tax rate	705	146	851
Increase relating to prior year tax positions	52	38	90
Decrease relating to prior year tax positions	(33)	(3)	(36)
Increase relating to current year tax positions	155	—	155
Decrease due to settlements with tax authorities	(38)	(13)	(51)
Decrease as a result of the applicable statute of limitations	(62)	(15)	(77)
Exchange rate differences	(35)	(8)	(43)
Balance at December 31, 2015, which would, if recognized, affect the effective tax rate	744	145	889
Increase relating to prior year tax positions	88	74	162
Decrease relating to prior year tax positions	(21)	(20)	(41)
Increase relating to current year tax positions	167	13	180
Decrease due to settlements with tax authorities	(96)	(21)	(117)
Decrease as a result of the applicable statute of limitations	(95)	(13)	(108)
Exchange rate differences	(27)	(6)	(33)
Balance at December 31, 2016, which would, if recognized, affect the effective tax rate	760	172	932

In 2016, 2015 and 2014, the "Increase relating to current year tax positions" included a total of $132 million, $127 million and $56 million, respectively, in taxes related to the interpretation of tax law and double tax treaty agreements by competent tax authorities.

At December 31, 2016, the Company expected the resolution, within the next twelve months, of uncertain tax positions related to pending court cases amounting to $9 million for taxes, penalties and interest. Otherwise, the Company had not identified any other significant changes which were considered reasonably possible to occur within the next twelve months.

At December 31, 2016, the earliest significant open tax years that remained subject to examination were the following:

Region	Year
Europe	2011
The Americas	2013
Asia, Middle East & Africa	2007

Note 17
Employee benefits

The Company operates defined benefit pension plans, defined contribution pension plans, and termination indemnity plans, in accordance with local regulations and practices. These plans cover a large portion of the Company's employees and provide benefits to employees in the event of death, disability, retirement, or termination of employment. Certain of these plans are multi-employer plans. The Company also operates other postretirement benefit plans including postretirement health care benefits and other employee-related benefits for active employees including long-service award plans. The measurement

date used for the Company's employee benefit plans is December 31. The funding policies of the Company's plans are consistent with the local government and tax requirements.

The Company recognizes in its Consolidated Balance Sheets the funded status of its defined benefit pension plans, postretirement plans, and other employee-related benefits measured as the difference between the fair value of the plan assets and the benefit obligation.

Obligations and funded status of the plans

The change in benefit obligation, change in fair value of plan assets, and funded status recognized in the Consolidated Balance Sheets were as follows:

	Defined pension benefits		Other postretirement benefits	
($ in millions)	2016	2015	2016	2015
Benefit obligations at January 1,	11,224	12,355	178	245
Service cost	249	267	1	1
Interest cost	280	305	6	8
Contributions by plan participants	74	76	—	—
Benefit payments	(596)	(614)	(11)	(15)
Benefit obligations of businesses acquired (divested)	(26)	—	—	—
Actuarial (gain) loss	375	(469)	(17)	(31)
Plan amendments and other	(76)	(141)	(10)	(27)
Exchange rate differences	(608)	(555)	—	(3)
Benefit obligation at December 31,	10,896	11,224	147	178
Fair value of plan assets at January 1,	9,743	10,465	—	—
Actual return on plan assets	659	(8)	—	—
Contributions by employer	270	243	11	15
Contributions by plan participants	74	76	—	—
Benefit payments	(596)	(614)	(11)	(15)
Plan amendments and other	(133)	—	—	—
Exchange rate differences	(524)	(419)	—	—
Fair value of plan assets at December 31,	9,493	9,743	—	—
Funded status — underfunded	(1,403)	(1,481)	(147)	(178)

The amounts recognized in "Accumulated other comprehensive loss" and "Noncontrolling interests" were:

	Defined pension benefits			Other postretirement benefits		
December 31, ($ in millions)	2016	2015	2014	2016	2015	2014
Net actuarial (loss) gain	(2,237)	(2,383)	(2,765)	10	(8)	(39)
Prior service credit	108	127	2	31	33	16
Amount recognized in OCI[1] and NCI[2]	(2,129)	(2,256)	(2,763)	41	25	(23)
Taxes associated with amount recognized in OCI and NCI	487	512	652	—	—	—
Amount recognized in OCI and NCI, net of tax[3]	(1,642)	(1,744)	(2,111)	41	25	(23)

In addition, the following amounts were recognized in the Company's Consolidated Balance Sheets:

	Defined pension benefits		Other postretirement benefits	
December 31, ($ in millions)	2016	2015	2016	2015
Overfunded plans	68	42	—	—
Underfunded plans — current	(16)	(18)	(13)	(14)
Underfunded plans — non-current	(1,455)	(1,505)	(134)	(164)
Funded status — underfunded	(1,403)	(1,481)	(147)	(178)

December 31, ($ in millions)	2016	2015
Non-current assets		
Overfunded pension plans	68	42
Other employee-related benefits	22	26
Prepaid pension and other employee benefits	90	68

December 31, ($ in millions)	2016	2015
Current liabilities		
Underfunded pension plans	(16)	(18)
Underfunded other postretirement benefit plans	(13)	(14)
Other employee-related benefits	(30)	(34)
Pension and other employee benefits (see Note 13)	(59)	(66)

December 31, ($ in millions)	2016	2015
Non-current liabilities		
Underfunded pension plans	(1,455)	(1,505)
Underfunded other postretirement benefit plans	(134)	(164)
Other employee-related benefits	(245)	(255)
Pension and other employee benefits	(1,834)	(1,924)

The funded status, calculated using the projected benefit obligation (PBO) and fair value of plan assets, for pension plans with a PBO in excess of fair value of plan assets (underfunded) or fair value of plan assets in excess of PBO (overfunded), respectively, was:

	2016			2015		
December 31, ($ in millions)	PBO	Assets	Difference	PBO	Assets	Difference
PBO exceeds assets	9,892	8,420	(1,472)	10,413	8,890	(1,523)
Assets exceed PBO	1,004	1,073	69	811	853	42
Total	10,896	9,493	(1,403)	11,224	9,743	(1,481)

The accumulated benefit obligation (ABO) for all defined benefit pension plans was $10,612 million and $10,924 million at December 31, 2016 and 2015, respectively. The funded status, calculated using the ABO and fair value of plan assets for pension plans with ABO in excess of fair value of plan assets (underfunded) or fair value of plan assets in excess of ABO (overfunded), respectively, was:

	2016			2015		
December 31, ($ in millions)	ABO	Assets	Difference	ABO	Assets	Difference
ABO exceeds assets	9,612	8,406	(1,206)	8,781	7,496	(1,285)
Assets exceed ABO	1,000	1,087	87	2,143	2,247	104
Total	10,612	9,493	(1,119)	10,924	9,743	(1,181)

All of the Company's other postretirement benefit plans are unfunded.

Components of net periodic benefit cost

Net periodic benefit cost consisted of the following:

	Defined pension benefits			Other postretirement benefits		
($ in millions)	2016	2015	2014	2016	2015	2014
Service cost	249	267	243	1	1	1
Interest cost	280	305	409	6	8	10
Expected return on plan assets	(402)	(456)	(481)	—	—	—
Amortization of prior service cost (credit)	40	38	27	(12)	(9)	(9)
Amortization of net actuarial loss	85	112	102	—	1	—
Curtailments, settlements and special termination benefits	41	20	1	—	—	—
Net periodic benefit cost	293	286	301	(5)	1	2

The net actuarial loss and prior service cost for defined pension benefits estimated to be amortized from "Accumulated other comprehensive loss" into net periodic benefit cost in 2017 is $87 million and $35 million, respectively.

The net prior service credit for other postretirement benefits estimated to be amortized from "Accumulated other comprehensive loss" into net periodic benefit cost in 2017 is $5 million. There is no significant actuarial gain or loss to be amortized in 2017.

Assumptions

The following weighted-average assumptions were used to determine benefit obligations:

	Defined pension benefits		Other postretirement benefits	
December 31, (in %)	2016	2015	2016	2015
Discount rate	2.3	2.6	3.3	3.6
Rate of compensation increase	1.7	1.5	—	—
Rate of pension increase	1.0	0.9	—	—

The discount rate assumptions are based upon AA-rated corporate bonds. In those countries with sufficient liquidity in corporate bonds, the Company used the current market long-term corporate bond yields and matched the bond duration with the average duration of the pension liabilities. In those countries where the liquidity of the AA-rated corporate bonds was deemed to be insufficient, the Company determined the discount rate by adding the credit spread derived from an AA corporate bond index in another relevant liquid market, as adjusted for interest rate differentials, to the domestic government bond curve or interest rate swap curve.

The following weighted-average assumptions were used to determine the "Net periodic benefit cost":

	Defined pension benefits			Other postretirement benefits		
(in %)	2016	2015	2014	2016	2015	2014
Discount rate	2.6	2.6	3.6	3.6	3.5	4.2
Expected long-term rate of return on plan assets	4.3	4.6	4.6	—	—	—
Rate of compensation increase	1.5	1.7	1.8	—	—	—

The "Expected long-term rate of return on plan assets" is derived for each benefit plan by considering the expected future long-term return assumption for each individual asset class. A single long-term return assumption is then derived for each plan based upon the plan's target asset allocation.

The Company maintains other postretirement benefit plans, which are generally contributory with participants' contributions adjusted annually. The assumptions used were:

December 31,	2016	2015
Health care cost trend rate assumed for next year	7.3 %	7.7 %
Rate to which the trend rate is assumed to decline (the ultimate trend rate)	5.0 %	5.0 %
Year that the rate reaches the ultimate trend rate	2028	2028

A one-percentage-point change in assumed health care cost trend rates would have the following effects at December 31, 2016:

	1-percentage-point	
($ in millions)	Increase	Decrease
Effect on total of service and interest cost	1	—
Effect on postretirement benefit obligation	9	(8)

Plan assets

The Company has pension plans in various countries with the majority of the Company's pension liabilities deriving from a limited number of these countries.

The pension plans are typically funded by regular contributions from employees and the Company. These plans are typically administered by boards of trustees (which include Company representatives) whose primary responsibilities include ensuring that the plans meet their liabilities through contributions and

investment returns. The boards of trustees have the responsibility for making key investment strategy decisions within a risk-controlled framework.

The pension plan assets are invested in diversified portfolios that are managed by third-party asset managers, in accordance with local statutory regulations, pension plan rules and the respective plans' investment guidelines, as approved by the boards of trustees.

Plan assets are generally segregated from those of the Company and invested with the aim of meeting the respective plans' projected future pension liabilities. Plan assets are measured at fair value at the balance sheet date.

The boards of trustees manage the assets of the pension plans in a risk-controlled manner and assess the risks embedded in the pension plans through asset/liability management studies. Asset/liability management studies typically take place every three years. However, the risks of the plans are monitored on an ongoing basis.

The board of trustees' investment goal is to maximize the long-term returns of plan assets within specified risk parameters, while considering the future liabilities and liquidity needs of the individual plans. Risk measures taken into account include the funding ratio of the plan, the likelihood of extraordinary cash contributions being required, the risk embedded in each individual asset class, and the plan asset portfolio as a whole.

The Company's global pension asset allocation is the result of the asset allocations of the individual plans, which are set by the respective boards of trustees. The target asset allocation of the Company's plans on a weighted-average basis is as follows:

(in %)	Target
Asset class	
Equity	22
Fixed income	59
Real estate	12
Other	7
	100

The actual asset allocations of the plans are in line with the target asset allocations.

Equity assets primarily include investments in large-cap and mid-cap publicly-traded companies. Fixed income assets primarily include corporate bonds of companies from diverse industries and government bonds. Both fixed income and equity assets are invested either via funds or directly in segregated investment mandates, and include an allocation to emerging markets. Real estate consists primarily of direct investments in real estate in Switzerland held in the Swiss plans. The "Other" asset class includes investments in private equity, hedge funds, commodities, and cash and reflects a variety of investment strategies.

Based on the above global asset allocation and the fair values of the plan assets, the expected long-term return on assets at December 31, 2016, is 4.2 percent. The Company and the local boards of trustees regularly review the investment performance of the asset classes and individual asset managers. Due to the diversified nature of the investments, the Company is of the opinion that no significant concentration of risks exists in its pension fund assets.

The Company does not expect any plan assets to be returned to the employer during 2017.

At December 31, 2016 and 2015, plan assets include ABB Ltd's shares (as well as an insignificant amount of the Company's debt instruments) with a total value of $8 million and $9 million, respectively.

The fair values of the Company's pension plan assets by asset class are presented below. For further information on the fair value hierarchy and an overview of the Company's valuation techniques applied, see the "Fair value measures" section of Note 2.

December 31, 2016 ($ in millions)	Level 1	Level 2	Level 3	Total fair value
Asset class				
Equity				
Equity securities	244	—	—	244
Mutual funds/commingled funds	—	1,610	—	1,610
Emerging market mutual funds/commingled funds	—	337	—	337
Fixed income				
Government and corporate securities	449	909	—	1,358
Government and corporate — mutual funds/commingled funds	—	3,446	—	3,446
Emerging market bonds — mutual funds/commingled funds	—	692	—	692
Real estate	—	33	1,116	1,149
Insurance contracts	—	99	—	99
Cash and short-term investments	260	104	—	364
Private equity	—	—	114	114
Hedge funds	—	—	13	13
Commodities	—	67	—	67
Total	953	7,297	1,243	9,493

December 31, 2015 ($ in millions)	Level 1	Level 2	Level 3	Total fair value
Asset class				
Equity				
Equity securities	364	—	—	364
Mutual funds/commingled funds	—	1,633	—	1,633
Emerging market mutual funds/commingled funds	—	328	—	328
Fixed income				
Government and corporate securities	587	949	—	1,536
Government and corporate — mutual funds/commingled funds	—	3,257	—	3,257
Emerging market bonds — mutual funds/commingled funds	—	669	—	669
Real estate	—	74	1,106	1,180
Insurance contracts	—	121	—	121
Cash and short-term investments	160	219	—	379
Private equity	—	—	123	123
Hedge funds	—	—	94	94
Commodities	—	59	—	59
Total	1,111	7,309	1,323	9,743

The following table represents the movements of those asset categories whose fair values use significant unobservable inputs (Level 3):

($ in millions)	Private equity	Hedge funds	Real estate	Total Level 3
Balance at January 1, 2015	136	93	842	1,071
Return on plan assets				
Assets still held at December 31, 2015	(9)	1	54	46
Assets sold during the year	20	(1)	(1)	18
Purchases (sales)	(24)	—	215	191
Exchange rate differences	—	1	(4)	(3)
Balance at December 31, 2015	123	94	1,106	1,323
Return on plan assets				
Assets still held at December 31, 2016	(9)	—	82	73
Assets sold during the year	15	(4)	—	11
Purchases (sales)	(13)	(77)	(1)	(91)
Transfers into Level 3	1	—	(3)	(2)
Exchange rate differences	(3)	—	(68)	(71)
Balance at December 31, 2016	114	13	1,116	1,243

Real estate properties, which are primarily located in Switzerland, are valued under the income approach using the discounted cash flow method, by which the market value of a property is determined as the total of all projected future earnings discounted to the valuation date. The discount rates are determined

for each property individually according to the property's location and specific use, and by considering initial yields of comparable market transactions.

Private equity investments include investments in partnerships and related funds. Such investments consist of publicly-traded and privately-held securities. Publicly-traded securities that are quoted in inactive markets are valued using available quotes and adjusted for liquidity restrictions. Privately-held securities are valued taking into account various factors, such as the most recent financing involving unrelated new investors, earnings multiple analyses using comparable companies and discounted cash flow analyses.

Hedge funds are not normally exchange-traded and the shares of the funds cannot be redeemed daily. Depending on the fund structure, the fair values are derived through modeling techniques based on the values of the underlying assets adjusted to reflect liquidity and transferability restrictions.

Contributions

Employer contributions were as follows:

	Defined pension benefits		Other postretirement benefits	
($ in millions)	2016	2015	2016	2015
Total contributions to defined benefit pension and other postretirement benefit plans	270	243	11	15
Of which, discretionary contributions to defined benefit pension plans	15	31	—	—

In 2016 and 2015, total contributions included non-cash contributions totaling $52 million and $22 million, respectively, of available-for-sale debt securities to certain of the Company's pension plans.

The Company expects to contribute approximately $193 million, including $12 million in discretionary contributions, to its defined benefit pension plans in 2017. These discretionary contributions are expected to be non-cash contributions. The Company expects to contribute approximately $13 million to its other postretirement benefit plans in 2017.

The Company also contributes to a number of defined contribution plans. The aggregate expense for these plans was $210 million, $218 million and $236 million in 2016, 2015 and 2014, respectively. Contributions to multi-employer plans were not significant in 2016, 2015 and 2014.

Estimated future benefit payments

The expected future cash flows to be paid by the Company's plans in respect of pension and other postretirement benefit plans at December 31, 2016, are as follows:

($ in millions)	Defined pension benefits	Other postretirement benefits
2017	593	13
2018	598	13
2019	578	13
2020	585	12
2021	563	12
Years 2022-2026	2,718	51

Note 18
Share-based payment arrangements

The Company has three principal share-based payment plans, as more fully described in the respective sections below. Compensation cost for equity-settled awards is recorded in "Total cost of sales" and in "Selling, general and administrative expenses" and totaled $54 million, $61 million and $73 million in 2016, 2015 and 2014, respectively. Compensation cost for cash-settled awards is recorded in "Selling, general and

administrative expenses" and is disclosed in the "WARs", "LTIP" and "Other share-based payments" sections of this note. The total tax benefit recognized in 2016, 2015 and 2014 was not significant.

At December 31, 2016, the Company had the ability to issue up to 94 million new shares out of contingent capital in connection with share-based payment arrangements. In addition, 29 million shares (of the 76 million shares held by the Company as treasury stock at December 31, 2016) could be used to settle share-based payment arrangements (the remaining shares of treasury stock are held for cancellation — see Note 19).

As the primary trading market for the shares of ABB Ltd is the SIX Swiss Exchange (on which the shares are traded in Swiss francs) and substantially all the share-based payment arrangements with employees are based on the Swiss franc share or have strike prices set in Swiss francs, certain data disclosed below related to the instruments granted under share-based payment arrangements are presented in Swiss francs.

MIP

Under the MIP, the Company offers options and cash-settled WARs to key employees for no consideration.

The options granted under the MIP allow participants to purchase shares of ABB Ltd at predetermined prices. Participants may sell the options rather than exercise the right to purchase shares. Equivalent warrants are listed by a third-party bank on the SIX Swiss Exchange, which facilitates pricing and transferability of instruments granted under this plan. The options entitle the holder to request that the third-party bank purchase such options at the market price of equivalent listed warrants related to that MIP launch. If the participant elects to sell the options, the instruments will thereafter be held by a third party and, consequently, the Company's obligation to deliver shares will be toward this third party. Each WAR gives the participant the right to receive, in cash, the market price of an equivalent listed warrant on the date of exercise of the WAR. Participants may exercise or sell options and exercise WARs after the vesting period, which is three years from the date of grant. Vesting restrictions can be waived in certain circumstances such as death or disability. All options and WARs expire six years from the date of grant.

Options

The fair value of each option is estimated on the date of grant using a lattice model that uses the assumptions noted in the table below. Expected volatilities are based on implied volatilities from equivalent listed warrants on ABB Ltd shares. The expected term of the options granted is the contractual six-year life of each option, based on the fact that after the vesting period, a participant can elect to sell the option rather than exercise the right to purchase shares, thereby also realizing the time value of the options. The risk-free rate is based on a six-year Swiss franc interest rate, reflecting the six-year contractual life of the options. In estimating forfeitures, the Company has used the data from previous comparable MIP launches.

	2016	2015	2014
Expected volatility	19 %	17 %	18 %
Dividend yield	4.9 %	3.2 %	2.9 %
Expected term	6 years	6 years	6 years
Risk-free interest rate	-0.5 %	-0.3 %	0.2 %

Presented below is a summary of the activity related to options under the MIP:

	Number of instruments (in millions)	Number of shares (in millions)[1]	Weighted-average exercise price (in Swiss francs)[2]	Weighted-average remaining contractual term (in years)	Aggregate intrinsic value (in millions of Swiss francs)[3]
Outstanding at January 1, 2016	399.1	79.8	20.51		
Granted	79.0	15.8	21.50		
Exercised[4]	(36.9)	(7.4)	15.75		
Forfeited	(12.9)	(2.6)	20.47		
Expired	(36.9)	(7.3)	22.52		
Outstanding at December 31, 2016	391.4	78.3	20.98	3.4	75
Vested and expected to vest at December 31, 2016	386.9	77.4	20.97	3.4	75
Exercisable at December 31, 2016	186.8	37.4	21.32	2.0	41

[illegible]

At December 31, 2016, there was $50 million of total unrecognized compensation cost related to non-vested options granted under the MIP. That cost is expected to be recognized over a weighted-average period of 2.1 years. The weighted-average grant-date fair value (per instrument) of options granted during 2016, 2015 and 2014 was 0.47 Swiss francs, 0.39 Swiss francs and 0.49 Swiss francs, respectively. In 2016 and 2015 the aggregate intrinsic value (on the date of exercise) of instruments exercised was $27 million and $10 million, respectively, while in 2014 it was not significant.

Presented below is a summary, by launch, related to instruments outstanding at December 31, 2016:

Exercise price (in Swiss francs)[1]	Number of instruments (in millions)	Number of shares (in millions)[2]	Weighted-average remaining contractual term (in years)
25.50	42.8	8.6	0.4
15.75	21.2	4.2	1.4
17.50	14.5	2.9	1.4
21.50	81.2	16.3	2.4
21.00	73.0	14.6	3.7
19.50	80.2	16.0	4.6
21.50	78.5	15.7	5.7
Total number of instruments and shares	391.4	78.3	3.4

1) [illegible]

WARs

As each WAR gives the holder the right to receive cash equal to the market price of the equivalent listed warrant on date of exercise, the Company records a liability based upon the fair value of outstanding WARs at each period end, accreted on a straight-line basis over the three-year vesting period. In "Selling, general and administrative expenses", the Company recorded an expense of $14 million in 2016, as a result of changes in both the fair value and vested portion of the outstanding WARs. The amount recorded in 2015 and 2014 was not significant. To hedge its exposure to fluctuations in the fair value of outstanding WARs, the Company purchased cash-settled call options, which entitle the Company to receive amounts equivalent to its obligations under the outstanding WARs. The cash-settled call options are recorded as derivatives measured at fair value (see Note 5), with subsequent changes in fair value recorded in earnings to the extent that they offset the change in fair value of the liability for the WARs. In 2016, 2015 and 2014 the amounts recorded in "Selling, general and administrative expenses" related to the cash-settled call options was not significant.

The aggregate fair value of outstanding WARs was $23 million and $13 million at December 31, 2016 and 2015, respectively. The fair value of WARs was determined based upon the trading price of equivalent warrants listed on the SIX Swiss Exchange.

Presented below is a summary of the activity related to WARs:

	Number of WARs (in millions)
Outstanding at January 1, 2016	55.2
Granted	9.3
Exercised	(13.3)
Forfeited	(0.2)
Expired	(3.7)
Outstanding at December 31, 2016	47.3
Exercisable at December 31, 2016	19.5

The aggregate fair value at date of grant of WARs granted in 2016, 2015 and 2014 was not significant. In 2016 and 2015, share-based liabilities of $7 million and $9 million, respectively, were paid upon exercise of WARs by participants. In 2014, the amount paid was not significant.

ESAP

The employee share acquisition plan (ESAP) is an employee stock-option plan with a savings feature. Employees save over a twelve-month period, by way of regular payroll deductions. At the end of the savings period, employees choose whether to exercise their stock options using their savings plus interest, if any, to buy ABB Ltd shares (American Depositary Shares (ADS) in the case of employees in the United States and Canada — each ADS representing one registered share of the Company) at the exercise price set at the grant date, or have their savings returned with any interest. The savings are accumulated in bank accounts held by a third-party trustee on behalf of the participants and earn interest, where applicable. Employees can withdraw from the ESAP at any time during the savings period and will be entitled to a refund of their accumulated savings.

The fair value of each option is estimated on the date of grant using the same option valuation model as described under the MIP, using the assumptions noted in the table below. The expected term of the option granted has been determined to be the contractual one-year life of each option, at the end of which the options vest and the participants are required to decide whether to exercise their options or have their savings returned with interest. The risk-free rate is based on one-year Swiss franc interest rates, reflecting the one-year contractual life of the options. In estimating forfeitures, the Company has used the data from previous ESAP launches.

	2016	2015	2014
Expected volatility	20 %	20 %	18 %
Dividend yield	3.7 %	3.9 %	3.1 %
Expected term	1 year	1 year	1 year
Risk-free interest rate	-0.7 %	-0.8 %	-0.1 %

Presented below is a summary of activity under the ESAP:

	Number of shares (in millions)[1]	Weighted-average exercise price (in Swiss francs)[2]	Weighted-average remaining contractual term (in years)	Aggregate intrinsic value (in millions of Swiss francs)[2][3]
Outstanding at January 1, 2016	3.7	18.78		
Granted	3.4	20.12		
Forfeited	(0.2)	18.84		
Exercised[4]	(2.6)	18.78		
Not exercised (savings returned plus interest)	(0.9)	18.78		
Outstanding at December 31, 2016	3.4	20.12	0.8	4.7
Vested and expected to vest at December 31, 2016	3.3	20.12	0.8	4.5
Exercisable at December 31, 2016	—	—	—	—

The exercise prices per ABB Ltd share and per ADS of 20.12 Swiss francs and $20.52, respectively, for the 2016 grant, 18.78 Swiss francs and $19.10, respectively, for the 2015 grant, and 20.97 Swiss francs and $21.81, respectively, for the 2014 grant were determined using the closing price of the ABB Ltd share on the SIX Swiss Exchange and ADS on the New York Stock Exchange on the respective grant dates.

At December 31, 2016, the total unrecognized compensation cost related to non-vested options granted under the ESAP was not significant. The weighted-average grant-date fair value (per option) of options granted during 2016, 2015 and 2014 was 1.24 Swiss francs, 1.07 Swiss francs and 1.19 Swiss francs, respectively. The total intrinsic value (on the date of exercise) of options exercised in 2016, 2015 and 2014 was not significant.

LTIP

The Company has a long-term incentive plan (LTIP) for members of its Executive Committee and selected other senior executives (Eligible Participants), as defined in the terms of the LTIP. The LTIP involves annual conditional grants of the Company's stock to such Eligible Participants that are subject to certain conditions.

The 2016 and 2015 LTIP launches are each composed of two performance components: (i) a component which is based on the achievement of a consolidated net income threshold and (ii) a component which is based on the Company's earnings per share performance. The 2014 launch under the LTIP is composed of two components: (i) a performance component based on the Company's earnings per share performance and (ii) a retention component.

For shares to vest under the threshold net income component of the 2016 and 2015 LTIP launches, the Company's consolidated net income has to reach a certain level set by the Board of Directors at the launch of the LTIP. The shares will not vest if this threshold is not achieved and will vest at 100 percent if this threshold is equaled or exceeded. In addition, the Eligible Participant has to fulfill the service condition as defined in the terms and conditions of the LTIP.

For the earnings per share performance component of the 2016, 2015 and 2014 LTIP launches, the actual number of shares that will vest at a future date is dependent on (i) the Company's weighted cumulative earnings per share performance over three financial years, beginning with the year of launch, and (ii) the fulfillment of the service condition as defined in the terms and conditions of the LTIP. The cumulative earnings per share performance is weighted as follows: 33 percent of the first year's result, 67 percent of the second year's result and 100 percent of the third year's result. The actual number of shares that ultimately vest will vary depending on the weighted cumulative earnings per share outcome, interpolated between a lower threshold (no shares vest) and an upper threshold (the number of shares vesting is capped at 200 percent of the conditional grant).

Under the retention component of the 2014 LTIP launch, each Eligible Participant was conditionally granted an individually defined maximum number of shares which fully vest at the end of the respective vesting periods (if the participant remains an Eligible Participant until the end of such period).

Under the threshold net income component of the 2016 and 2015 LTIP launches, an Eligible Participant receives 70 percent of the shares that have vested in the form of shares and 30 percent of the value of the shares that have vested in cash, with the possibility to elect to also receive the 30 percent portion in shares rather than in cash. For the 2016 and 2015 LTIP launches, under the earnings per share performance component, an Eligible Participant receives 70 percent of the shares that have vested in the form of shares and 30 percent of the value of the shares that have vested in cash, with the possibility to elect to also receive the 30 percent portion in shares rather than in cash, while for the 2014 LTIP launch an Eligible Participant receives, in cash, 100 percent of the value of the shares that have vested. Under the retention component of the 2014 LTIP launch, an Eligible Participant receives 70 percent of the shares that have vested in the form of shares and 30 percent of the value of the shares that have vested in cash, with the possibility to elect to also receive the 30 percent portion in shares rather than in cash.

Presented below is a summary of activity under the LTIP:

	Number of Shares Conditionally Granted			
	Equity & Cash or choice of 100 % Equity Settlement[1] (in millions)	Only Cash Settlement[2] (in millions)	Total (in millions)	Weighted-average grant-date fair value per share (Swiss francs)
Nonvested at January 1, 2016	2.1	0.7	2.8	20.96
Granted	1.0	—	1.0	20.77
Vested	(0.5)	(0.2)	(0.7)	20.93
Forfeited	—	(0.2)	(0.2)	20.95
Nonvested at December 31, 2016	2.6	0.3	2.9	20.89

Equity-settled awards are recorded in the "Capital stock and additional paid-in capital" component of stockholders' equity, with compensation cost recorded in "Selling, general and administrative expenses" over the vesting period (which is from grant date to the end of the vesting period) based on the grant-date fair value of the shares. Cash-settled awards are recorded as a liability, remeasured at fair value at each reporting date for the percentage vested, with changes in the liability recorded in "Selling, general and administrative expenses".

At December 31, 2016, there was $19 million of total unrecognized compensation cost related to equity-settled awards under the LTIP. That cost is expected to be recognized over a weighted-average period of 2 years. The compensation cost recorded in 2016, 2015 and 2014 for cash-settled awards was not significant.

The aggregate fair value, at the dates of grant, of shares granted in 2016, 2015 and 2014 was $22 million, $23 million and $22 million, respectively. The total grant-date fair value of shares that vested during 2016, 2015 and 2014 was $15 million, $12 million and $15 million, respectively. The weighted-average grant-date fair value (per share) of shares granted during 2016, 2015 and 2014 was 20.77 Swiss francs, 21.54 Swiss francs and 20.35 Swiss francs, respectively.

For the net income threshold component of the 2016 and 2015 LTIP launches, the fair value of the granted shares is based on the probability of reaching the threshold as well as on the market price of the ABB Ltd share at grant date for equity-settled awards and at each reporting date for cash-settled awards. For the earnings per share component of the LTIP launches, the fair value of granted shares is based on the market price of the ABB Ltd share at grant date for equity-settled awards and at each reporting date for cash-settled awards, as well as the probable outcome of the earnings per share achievement that would result in the vesting of the highest number of shares, as computed using a Monte Carlo simulation model. The main inputs to this model are the Company's and external financial analysts' revenue growth rates and Operational EBITA margin expectations. For the retention component under the 2014 LTIP launch, the fair value of granted shares for equity-settled awards is based on the market price of the ABB Ltd share on grant date and the fair value of granted shares for cash-settled awards is based on the market price of the ABB Ltd share at each reporting date.

Other share-based payments
The Company has other minor share-based payment arrangements with certain employees. The compensation cost related to these arrangements in 2016, 2015 and 2014 was not significant.

Note 19
Stockholders' equity

At December 31, 2016 and 2015, the Company had 2,719 million and 2,819 million authorized shares, respectively, of which 2,215 million and 2,315 million, respectively, were registered and issued.

At the Annual General Meeting of Shareholders (AGM) in April 2016, shareholders approved the proposal of the Board of Directors to distribute a total of 0.74 Swiss francs per share to shareholders by way of a nominal value reduction (reduction in the par value of each share) from 0.86 Swiss francs to 0.12 Swiss

francs. In July 2016, the nominal value reduction was registered in the commercial register of the canton of Zurich, Switzerland, and was paid. The Company recorded a reduction in Capital stock and additional paid-in capital of $1,224 million and a reduction in Retained earnings of $402 million in relation to the nominal value reduction. At the AGM in April 2015, shareholders approved the proposals of the Board of Directors to distribute a total of 0.72 Swiss francs per share to shareholders, comprising of a dividend of 0.55 Swiss francs paid out of ABB Ltd's capital contribution reserves and a distribution of 0.17 Swiss francs by way of a nominal value reduction from 1.03 Swiss francs to 0.86 Swiss francs. The approved dividend distribution amounted to $1,317 million and was paid in May 2015. The nominal value reduction was registered in July 2015 in the commercial register of the canton of Zurich, Switzerland, and was paid in the third quarter of 2015. The approved nominal value reduction was recorded as a reduction to Capital stock and additional paid-in capital of $349 million and a reduction in Retained earnings of $54 million. At the AGM in April 2014, shareholders approved the payment of a dividend of 0.70 Swiss francs per share out of the capital contribution reserve in stockholders' equity of the unconsolidated statutory financial statements of ABB Ltd, prepared in accordance with Swiss law. The dividends were paid in May 2014 (amounting to $1,841 million).

Between September 2014 and September 2016, the Company executed a share buyback program for the purchase of up to $4 billion of its own shares and on September 30, 2016, announced that it had completed this program. Over the period of the share buyback, the Company purchased a total of 146.6 million shares (for approximately $3 billion) for cancellation and 24.7 million shares (for approximately $0.5 billion) to support its employee share programs. The shares acquired for cancellation were purchased through a separate trading line on the SIX Swiss Exchange (on which only the Company could purchase shares), while shares acquired for delivery under employee share programs were acquired through the ordinary trading line. In 2016, under the announced share buyback program, the Company purchased 60.4 million shares for cancellation and 4.9 million shares to support its employee share programs. These transactions resulted in an increase in Treasury stock of $1,280 million. In 2015, under the program, the Company purchased 60.2 million shares for cancellation and 13.1 million shares to support its employee share programs. These transactions resulted in an increase in Treasury stock of $1,501 million. In 2014, under the program, the Company purchased 26.0 million shares for cancellation and 6.8 million shares to support its employee share programs. These transactions resulted in an increase in Treasury stock of $733 million.

In the second quarter of 2014, the Company purchased on the open market an aggregate of 12.0 million of its own shares to be available for delivery under its employee share programs. These transactions resulted in an increase in Treasury stock of $282 million.

At the AGM in April 2016, shareholders approved the proposal of the Board of Directors to reduce the share capital of the Company by cancelling 100 million treasury shares which were acquired under the share buyback program. This cancellation was completed in July 2016, resulting in a decrease in Treasury stock of $2,047 million and a corresponding combined decrease in Capital stock and additional paid-in capital and Retained earnings.

Upon and in connection with each launch of the Company's MIP, the Company sold call options to a bank at fair value, giving the bank the right to acquire shares equivalent to the number of shares represented by the MIP WAR awards to participants. Under the terms of the agreement with the bank, the call options can only be exercised by the bank to the extent that MIP participants have exercised their WARs. At December 31, 2016, such call options representing 11.0 million shares and with strike prices ranging from 15.75 to 21.50 Swiss francs (weighted-average strike price of 20.30 Swiss francs) were held by the bank. The call options expire in periods ranging from May 2018 to August 2022. However, only 2.3 million of these instruments, with strike prices ranging from 15.75 to 21.50 Swiss francs (weighted-average strike price of 20.23 Swiss francs), could be exercised at December 31, 2016, under the terms of the agreement with the bank.

In addition to the above, at December 31, 2016, the Company had further outstanding obligations to deliver:

- up to 8.6 million shares relating to the options granted under the 2011 launch of the MIP, with a strike price of 25.50 Swiss francs, vested in May 2014 and expiring in May 2017,
- up to 7.1 million shares relating to the options granted under the 2012 launches of the MIP, with a weighted-average strike price of 16.46 Swiss francs, vested in May 2015 and expiring in May 2018,
- up to 16.3 million shares relating to the options granted under the 2013 launch of the MIP, with a strike price of 21.50 Swiss francs, vested in May 2016 and expiring in May 2019,

- up to 14.6 million shares relating to the options granted under the 2014 launch of the MIP, with a strike price of 21.00 Swiss francs, vesting in August 2017 and expiring in August 2020,
- up to 16.0 million shares relating to the options granted under the 2015 launch of the MIP, with a strike price of 19.50 Swiss francs, vesting in August 2018 and expiring in August 2021,
- up to 15.7 million shares relating to the options granted under the 2016 launch of the MIP, with a strike price of 21.50 Swiss francs, vesting in August 2019 and expiring in August 2022,
- up to 3.4 million shares relating to the ESAP, vesting and expiring in October 2017,
- up to 3.6 million shares to Eligible Participants under the 2016, 2015 and 2014 launches of the LTIP, vesting and expiring in June 2019, June 2018 and August 2017, respectively, and
- less than 1 million shares in connection with certain other share-based payment arrangements with employees.

See Note 18 for a description of the above share-based payment arrangements.

In 2016, 2015 and 2014, the Company delivered 8.9 million, 5.3 million and 1.3 million shares, respectively, out of treasury stock, for options exercised in relation to the MIP. In addition, in 2016 the Company delivered 2.6 million shares from treasury stock under the ESAP. In 2015 and 2014 the number of shares delivered under the ESAP was not significant.

Amounts available to be distributed as dividends to the stockholders of ABB Ltd are based on the requirements of Swiss law and ABB Ltd's Articles of Incorporation, and are determined based on amounts presented in the unconsolidated financial statements of ABB Ltd, prepared in accordance with Swiss law. At December 31, 2016, the total unconsolidated stockholders' equity of ABB Ltd was 9,029 million Swiss francs ($8,840 million), including 266 million Swiss francs ($260 million) representing share capital, 10,283 million Swiss francs ($10,068 million) representing reserves and 1,520 million Swiss francs ($1,488 million) representing a reduction of equity for own shares (treasury stock). Of the reserves, 1,520 million Swiss francs ($1,488 million) relating to own shares and 53 million Swiss francs ($52 million) representing 20 percent of share capital, are restricted and not available for distribution.

In February 2017, the Company announced that a proposal will be put to the 2017 AGM for approval by the shareholders to distribute 0.76 Swiss francs per share to shareholders.

Note 20
Earnings per share

Basic earnings per share is calculated by dividing income by the weighted-average number of shares outstanding during the year. Diluted earnings per share is calculated by dividing income by the weighted-average number of shares outstanding during the year, assuming that all potentially dilutive securities were exercised, if dilutive. Potentially dilutive securities comprise outstanding written call options and outstanding options and shares granted subject to certain conditions under the Company's share-based payment arrangements. In 2016, 2015 and 2014, outstanding securities representing a maximum of 87 million, 78 million and 59 million shares, respectively, were excluded from the calculation of diluted earnings per share as their inclusion would have been anti-dilutive.

Basic earnings per share:			
($ in millions, except per share data in $)	2016	2015	2014
Amounts attributable to ABB shareholders:			
Income from continuing operations, net of tax	1,883	1,930	2,570
Income from discontinued operations, net of tax	16	3	24
Net income	1,899	1,933	2,594
Weighted-average number of shares outstanding (in millions)	2,151	2,226	2,288
Basic earnings per share attributable to ABB shareholders:			
Income from continuing operations, net of tax	0.88	0.87	1.12
Income from discontinued operations, net of tax	—	—	0.01
Net income	0.88	0.87	1.13

Diluted earnings per share:			
($ in millions, except per share data in $)	2016	2015	2014
Amounts attributable to ABB shareholders:			
Income from continuing operations, net of tax	1,883	1,930	2,570
Income from discontinued operations, net of tax	16	3	24
Net income	1,899	1,933	2,594
Weighted-average number of shares outstanding (in millions)	2,151	2,226	2,288
Effect of dilutive securities:			
Call options and shares	3	4	7
Adjusted weighted-average number of shares outstanding (in millions)	2,154	2,230	2,295
Diluted earnings per share attributable to ABB shareholders:			
Income from continuing operations, net of tax	0.87	0.87	1.12
Income from discontinued operations, net of tax	0.01	—	0.01
Net income	0.88	0.87	1.13

Note 21
Other comprehensive income

The following table includes amounts recorded within "Total other comprehensive income (loss)" including the related income tax effects.

	2016			2015			2014		
($ in millions)	Before tax	Tax effect	Net of tax	Before tax	Tax effect	Net of tax	Before tax	Tax effect	Net of tax
Foreign currency translation adjustments:									
Net change during the year	(462)	(12)	(474)	(1,105)	47	(1,058)	(1,691)	11	(1,680)
Available-for-sale securities:									
Net unrealized gains (losses) arising during the year	—	—	—	(8)	1	(7)	(14)	5	(9)
Reclassification adjustments for net (gains) losses included in net income	—	—	—	1	—	1	21	(6)	15
Net change during the year	—	—	—	(7)	1	(6)	7	(1)	6
Pension and other postretirement plans:									
Prior service (costs) credits arising during the year	(46)	6	(40)	113	(25)	88	(5)	2	(3)
Net actuarial gains (losses) arising during the year	38	6	44	285	(75)	210	(826)	212	(614)
Amortization of prior service cost included in net income	28	(2)	26	29	(3)	26	18	(1)	17
Amortization of net actuarial loss included in net income	85	(23)	62	113	(31)	82	102	(21)	81
Net losses from pension settlements included in net income	37	(11)	26	15	(6)	9	(3)	1	(2)
Net change during the year	142	(24)	118	555	(140)	415	(714)	193	(521)
Cash flow hedge derivatives:									
Net gains (losses) arising during the year	21	(5)	16	(26)	6	(20)	(65)	13	(52)
Reclassification adjustments for net (gains) losses included in net income	(7)	1	(6)	39	(9)	30	10	(1)	9
Net change during the year	14	(4)	10	13	(3)	10	(55)	12	(43)
Total other comprehensive income (loss)	(306)	(40)	(346)	(544)	(95)	(639)	(2,453)	215	(2,238)

The following table shows changes in "Accumulated other comprehensive loss" (OCI) attributable to ABB, by component, net of tax:

($ in millions)	Foreign currency translation adjustments	Unrealized gains (losses) on available-for-sale securities	Pension and other post-retirement plan adjustments	Unrealized gains (losses) of cash flow hedge derivatives	Total OCI
Balance at January 1, 2014	(431)	7	(1,610)	22	(2,012)
Other comprehensive (loss) income before reclassifications	(1,680)	(9)	(617)	(52)	(2,358)
Amounts reclassified from OCI	—	15	96	9	120
Total other comprehensive (loss) income	(1,680)	6	(521)	(43)	(2,238)
Less:					
Amounts attributable to noncontrolling interests	(9)	—	—	—	(9)
Balance at December 31, 2014	(2,102)	13	(2,131)	(21)	(4,241)
Other comprehensive (loss) income before reclassifications	(1,058)	(7)	298	(20)	(787)
Amounts reclassified from OCI	—	1	117	30	148
Total other comprehensive (loss) income	(1,058)	(6)	415	10	(639)
Less:					
Amounts attributable to noncontrolling interests	(25)	—	3	—	(22)
Balance at December 31, 2015	(3,135)	7	(1,719)	(11)	(4,858)
Other comprehensive (loss) income before reclassifications	(474)	—	4	16	(454)
Amounts reclassified from OCI	—	—	114	(6)	108
Total other comprehensive (loss) income	(474)	—	118	10	(346)
Less:					
Amounts attributable to noncontrolling interests	(17)	—	—	—	(17)
Balance at December 31, 2016	(3,592)	7	(1,601)	(1)	(5,187)

The following table reflects amounts reclassified out of OCI in respect of Pension and other postretirement plan adjustments and Unrealized gains (losses) of cash flow hedge derivatives:

Details about OCI components ($ in millions)	Location of (gains) losses reclassified from OCI	2016	2015	2014
Pension and other postretirement plan adjustments				
Amortization of prior service cost	Net periodic benefit cost[1]	28	29	18
Amortization of net actuarial losses	Net periodic benefit cost[1]	85	113	102
Net losses from pension settlements	Net periodic benefit cost[1]	37	15	(3)
Total before tax		150	157	117
Tax	Provision for taxes	(36)	(40)	(21)
Amounts reclassified from OCI		114	117	96
Unrealized gains (losses) on cash flow hedge derivatives				
Foreign exchange contracts	Total revenues	11	36	9
	Total cost of sales	(10)	(11)	(8)
Commodity contracts	Total cost of sales	2	10	3
Cash-settled call options	SG&A expenses[2]	(10)	4	6
Total before tax		(7)	39	10
Tax	Provision for taxes	1	(9)	(1)
Amounts reclassified from OCI		(6)	30	9

[illegible]

The amounts reclassified out of OCI in respect of Unrealized gains (losses) on available-for-sale securities were not significant in 2016, 2015 and 2014.

Note 22
Restructuring and related expenses

White Collar Productivity program
In September 2015, the Company announced a two-year program aimed at making the Company leaner, faster and more customer-focused. Productivity improvements include the rapid expansion and use of regional shared service centers as well as the streamlining of global operations and head office functions, with business units moving closer to their respective key markets. In the course of this program, the Company is implementing and executing various restructuring initiatives across all operating segments and regions.

The following table outlines the cumulative costs incurred to date and the total amount of costs expected to be incurred under the program per operating segment:

	Costs incurred in		Cumulative costs incurred up to	Total
($ in millions)	2016	2015	December 31, 2016	expected costs[1]
Electrification Products	14	73	87	89
Discrete Automation and Motion	27	45	72	74
Process Automation	36	96	132	134
Power Grids	33	70	103	105
Corporate and Other	30	86	116	118
Total	140	370	510	520

Total expected program costs were originally estimated to be $852 million. During 2016, the total expected program costs were reduced by $332 million. This was primarily due to the realization of significantly higher than originally expected attrition and internal redeployment rates. The reductions were made across all operating segments as well as for corporate functions.

Of the total expected costs of $520 million the majority is related to employee severance costs.

The Company recorded the following expenses, net of changes in estimates, under this program:

($ in millions)	2016	2015	Cumulative costs incurred up to December 31, 2016
Employee severance costs	130	364	494
Estimated contract settlement, loss order and other costs	2	5	7
Inventory and long-lived asset impairments	8	1	9
Total	140	370	510

Expenses, net of changes in estimates, associated with this program are recorded in the following line items in the Consolidated Income Statements:

($ in millions)	2016	2015
Total cost of sales	92	122
Selling, general and administrative expenses	38	187
Non-order related research and development expenses	(5)	38
Other income (expense), net	15	23
Total	140	370

Liabilities associated with the White Collar Productivity program are primarily included in "Other provisions". The following table shows the activity from the beginning of the program to December 31, 2016, by expense type:

($ in millions)	Employee severance costs	Contract settlement, loss order and other costs	Total
Liability at January 1, 2015	—	—	—
Expenses	364	5	369
Cash payments	(34)	(1)	(35)
Liability at December 31, 2015	330	4	334
Expenses	232	3	235
Cash payments	(106)	(3)	(109)
Change in estimates	(102)	(1)	(103)
Exchange rate differences	(23)	—	(23)
Liability at December 31, 2016	331	3	334

The change in estimates during 2016 of $103 million is due to significantly higher than expected rates of attrition and internal redeployment and a lower than expected severance cost per employee for the employee groups affected by the first phase of restructuring initiated in 2015. The reduction in the liability was recorded in income from operations, primarily as reductions in Cost of sales of $49 million and in Selling, general and administrative expenses of $38 million.

Other restructuring-related activities

In 2016, 2015 and 2014, the Company executed various other restructuring-related activities and incurred charges of $171 million, $256 million and $235 million, respectively, which were primarily recorded in "Total cost of sales".

($ in millions)	2016	2015	2014
Employee severance costs	90	207	177
Estimated contract settlement, loss order and other costs	40	27	31
Inventory and long-lived asset impairments	41	22	27
Total	171	256	235

At December 31, 2016 and 2015, the balance of other restructuring-related liabilities is primarily included in "Other provisions".

Change in estimates

In addition to the change in estimate of $103 million relating to the White Collar Productivity program, a further $46 million was recorded as a change in estimate to reduce liabilities associated with the Company's other restructuring-related activities mainly due to changes in the planned scope of these activities. This was recorded in income from operations, primarily as reductions in Cost of sales. The combined total change in estimates during 2016 of $149 million resulted in an increase in earnings per share (basic and diluted) of $0.05 for 2016.

Note 23
Operating segment and geographic data

The Chief Operating Decision Maker (CODM) is the Chief Executive Officer. The CODM allocates resources to and assesses the performance of each operating segment using the information outlined below. The Company's operating segments consist of Electrification Products, Discrete Automation and Motion, Process Automation and Power Grids. The remaining operations of the Company are included in Corporate and Other.

Effective January 1, 2016, the Company reorganized its operating segments with the aim of delivering more customer value in a better, more focused way from its combined power and automation offering.

The new Electrification Products segment includes the business of the former Low Voltage Products segment and the Medium Voltage Products business from the former Power Products segment. The Process Automation segment has been expanded to include the Distributed Control Systems business from the former Power Systems segment, while the remaining businesses of the former Power Products and Power Systems segments were combined to form the new Power Grids segment. There were no significant changes to the Discrete Automation and Motion segment.

In addition, commencing in 2016, the Company changed its method of allocating income taxes to its operating segments whereby tax assets are primarily accounted for in Corporate and Other. As a result, certain amounts relating to current and deferred tax assets previously reported within the total segment assets of each individual operating segment have been allocated to Corporate and Other.

The segment information for 2015 and 2014, and at December 31, 2015 and 2014, has been recast to reflect these organizational and allocation changes.

A description of the types of products and services provided by each reportable segment is as follows:

- Electrification Products: manufactures and sells products and services including low- and medium-voltage switchgear (air and gas insulated), breakers, switches, control products, DIN rail components, automation and distribution enclosures, wiring accessories and installation material for many kinds of applications.

- Discrete Automation and Motion: manufactures and sells motors, generators, variable speed drives, robots and robotics, solar inverters, wind converters, rectifiers, excitation systems, power quality and protection solutions, electric vehicle fast charging infrastructure, components and subsystems for railways, and related services for a wide range of applications in discrete automation, process industries, transportation and utilities.

- Process Automation: develops and sells control and plant optimization systems, automation products and solutions, including instrumentation, as well as industry-specific application knowledge and services for the oil, gas and petrochemicals, metals and minerals, marine and turbocharging, pulp and paper, chemical and pharmaceuticals, and power industries.

- Power Grids: supplies power and automation products, systems, and service and software solutions for power generation, transmission and distribution to utility, industry, transportation and infrastructure customers. These offerings address evolving grid developments which include the integration of renewables, network control, digital substations, microgrids and asset management. The segment also manufactures a wide range of power, distribution and traction transformers, an array of high-voltage products, including circuit breakers, switchgear, capacitors and power transmission systems.

- Corporate and Other: includes headquarters, central research and development, the Company's real estate activities, Group Treasury Operations, historical operating activities of certain divested businesses, and other minor business activities.

The Company evaluates the profitability of its segments based on Operational EBITA. In 2016, the Company modified the definition of its measure of segment profit to also exclude changes in estimates relating to opening balance sheets of acquired businesses (changes in pre-acquisition estimates) and non-operational pension cost, which comprises: (a) interest cost, (b) expected return on plan assets, (c) amortization of prior service cost (credit), (d) amortization of net actuarial loss, and (e) curtailments, settlements and special termination benefits.

After these revisions, Operational EBITA represents Income from operations excluding: (i) amortization expense on intangibles arising upon acquisitions (acquisition-related amortization), (ii) restructuring and restructuring-related expenses, (iii) non-operational pension cost, (iv) changes in pre-acquisition estimates, (v) gains and losses from sale of businesses, acquisition-related expenses and certain non-operational items, as well as (vi) foreign exchange/commodity timing differences in income from operations consisting of: (a) unrealized gains and losses on derivatives (foreign exchange, commodities, embedded derivatives), (b) realized gains and losses on derivatives where the underlying hedged transaction has not yet been realized, and (c) unrealized foreign exchange movements on receivables/payables (and related assets/liabilities).

The CODM primarily reviews the results of each segment on a basis that is before the elimination of profits made on inventory sales between segments. Segment results below are presented before these eliminations, with a total deduction for intersegment profits to arrive at the Company's consolidated Operational EBITA. Intersegment sales and transfers are accounted for as if the sales and transfers were to third parties, at current market prices.

The following tables present segment revenues, Operational EBITA, the reconciliations of consolidated Operational EBITA to income from continuing operations before taxes, as well as depreciation and amortization, and capital expenditures for 2016, 2015 and 2014, as well as total assets at December 31, 2016, 2015 and 2014.

2016 ($ in millions)	Third-party revenues	Intersegment revenues	Total revenues
Electrification Products	8,744	548	9,292
Discrete Automation and Motion	8,169	545	8,714
Process Automation	6,448	150	6,598
Power Grids	10,408	567	10,975
Corporate and Other	59	1,553	1,612
Intersegment elimination	—	(3,363)	(3,363)
Consolidated	33,828	—	33,828

2015 ($ in millions)	Third-party revenues	Intersegment revenues	Total revenues
Electrification Products	8,932	615	9,547
Discrete Automation and Motion	8,492	635	9,127
Process Automation	7,104	120	7,224
Power Grids	10,876	745	11,621
Corporate and Other	77	1,459	1,536
Intersegment elimination	—	(3,574)	(3,574)
Consolidated	35,481	—	35,481

2014 ($ in millions)	Third-party revenues	Intersegment revenues	Total revenues
Electrification Products	9,826	746	10,572
Discrete Automation and Motion	9,296	846	10,142
Process Automation	8,490	128	8,618
Power Grids	11,533	985	12,518
Corporate and Other	685	1,652	2,337
Intersegment elimination	—	(4,357)	(4,357)
Consolidated	39,830	—	39,830

($ in millions)	2016	2015	2014
Operational EBITA			
Electrification Products	1,528	1,561	1,739
Discrete Automation and Motion	1,195	1,295	1,595
Process Automation	824	863	1,045
Power Grids	1,021	877	607
Corporate and Other and Intersegment elimination	(377)	(387)	(452)
Consolidated Operational EBITA	**4,191**	**4,209**	**4,534**
Acquisition-related amortization	(279)	(310)	(380)
Restructuring and restructuring-related expenses[1]	(543)	(674)	(235)
Non-operational pension cost[2]	(38)	(19)	(59)
Changes in pre-acquisition estimates[2]	(131)	(21)	—
Gains and losses on sale of businesses, acquisition-related expenses and certain non-operational items	(173)	(120)	482
Foreign exchange/commodity timing differences in income from operations:			
Unrealized gains and losses on derivatives where the underlying hedged transaction has not yet been realized	(65)	67	(223)
Realized gains and losses on derivatives where the underlying hedged transaction has not yet been realized	(5)	(68)	(42)
Unrealized foreign exchange movements on receivables/payables (and related assets/liabilities)	30	(15)	101
Income from operations	**2,987**	**3,049**	**4,178**
Interest and dividend income	73	77	80
Interest and other finance expense	(261)	(286)	(362)
Income from continuing operations before taxes	**2,799**	**2,840**	**3,896**

[illegible]

	Depreciation and amortization			Capital expenditure[1]			Total assets[1] at December 31,		
($ in millions)	2016	2015	2014	2016	2015	2014	2016	2015	2014
Electrification Products	305	316	341	200	210	248	9,523	9,474	10,552
Discrete Automation and Motion	292	295	309	128	145	192	8,465	9,223	10,131
Process Automation	74	79	90	51	56	47	4,153	4,662	5,200
Power Grids	266	280	336	203	191	242	8,980	9,422	10,632
Corporate and Other	198	190	229	249	274	297	8,378	8,575	8,337
Consolidated	**1,135**	**1,160**	**1,305**	**831**	**876**	**1,026**	**39,499**	**41,356**	**44,852**

[illegible]

Geographic information

Geographic information for revenues and long-lived assets was as follows:

	Revenues			Long-lived assets at December 31,	
($ in millions)	2016	2015	2014	2016	2015
Europe	11,315	11,602	13,745	2,768	3,253
The Americas	9,741	10,554	11,490	1,100	1,113
Asia, Middle East and Africa	12,772	13,325	14,595	875	910
Total	33,828	35,481	39,830	4,743	5,276

Revenues by geography reflect the location of the customer. Approximately 19 percent, 20 percent and 19 percent of the Company's total revenues in 2016, 2015 and 2014, respectively, came from customers in the United States. Approximately 13 percent of the Company's total revenues in 2016, 2015 and 2014, respectively, were generated from customers in China. In 2016, 2015 and 2014, more than 98 percent of the Company's total revenues were generated from customers outside Switzerland.

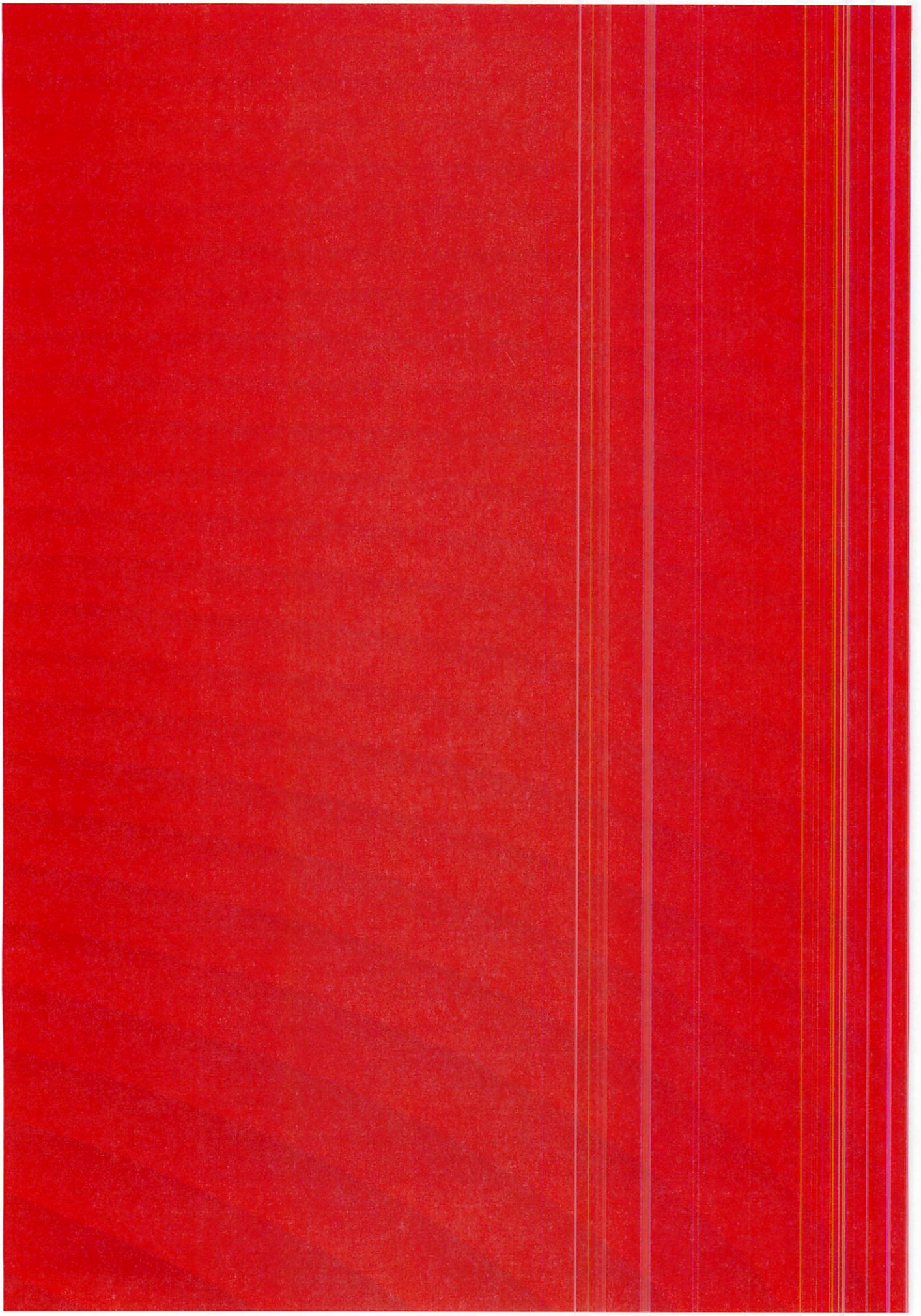
Long-lived assets represent "Property, plant and equipment, net" and are shown by location of the assets. At December 31, 2016, approximately 17 percent, 17 percent and 10 percent of the Company's long-lived assets were located in Switzerland, the U.S. and Sweden respectively. At December 31, 2015, approximately 16 percent were located in each of Switzerland, the U.S. and Sweden.

The Company does not segregate revenues derived from transactions with external customers for each type or group of products and services. Accordingly, it is not practicable for the Company to present revenues from external customers by product and service type.

Realignment of segments

On October 4, 2016, the Company announced a planned change in the composition of the business portfolio of its four segments. Effective January 1, 2017, the scope of the Electrification Products segment has been expanded to include the electric vehicle charging, solar, and power quality businesses from the Discrete Automation and Motion segment.

In addition, the Discrete Automation and Motion segment has been renamed the Robotics and Motion segment while the Process Automation segment has been renamed the Industrial Automation segment.



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05

ABB Ltd Statutory Financial Statements


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TOBIAS, RESEARCH & DEVELOPMENT, TURGI, SWITZERLAND

Since 2012 I have been managing the R&D Control Software unit. What makes me happy? The fact that my team and I are contributing to a sustainable energy future.

ABB Ltd Management Report 2016

ABB Ltd is the holding company of the ABB Group, owning directly or indirectly all subsidiaries globally.

The major business activities during 2016 can be summarized as follows:

Management services
The Company provided management services to a Group company of CHF 25 million.

Share transactions
- share buyback for employee share programs of CHF 93 million
- share buyback for reduction of share capital of CHF 1,162 million
- share deliveries for employee share programs of CHF 252 million

Dividend payment to external shareholders
- in form of a par value reduction of CHF 1,581 million

Share capital
The Company reduced its share capital by CHF 86 million in form of cancellation of 100 million shares of a par value of CHF 0.86. In addition, the Company reduced its share capital by CHF 1,639 million in the form of a par value reduction from CHF 0.86 to CHF 0.12 per share.

Other information
In 2016, the Company employed on average 21 employees.

Once a year, the Company's board of directors performs a risk assessment in accordance with the Group's risk management process and discusses appropriate actions if necessary.

The Company does not carry out any research and development business.

In 2017, the Company will continue to operate as the holding company of the ABB Group. No change of business is expected.

March 10, 2017

Financial Statements of ABB Ltd, Zurich

Income Statement

Year ended December 31 (CHF in thousands)	Note	2016	2015
Dividend income	8	2,000,000	3,000,000
Finance income		20,719	16,577
Other operating income	9	41,862	47,550
Finance expense		(67,035)	(26,099)
Personnel expenses		(38,039)	(32,030)
Other operating expenses		(29,344)	(29,940)
Net income before taxes		**1,928,163**	**2,976,058**
Income taxes		(3,352)	(2,341)
Net income		**1,924,811**	**2,973,717**

Balance Sheet

December 31 (CHF in thousands)	Note	2016	2015
Cash		739	835
Cash deposit with ABB Group Treasury Operations	2	841,331	1,979,217
Non-trade receivables		105	82
Non-trade receivables – Group		8,113	10,215
Accrued income and prepaid expenses – Group		1,828	3,329
Other short-term assets		—	697
Total current assets		**852,116**	**1,994,375**
Long-term loans – Group	5	510,675	—
Participation	3	8,973,229	8,973,229
Other long-term assets		3,810	4,944
Total non-current assets		**9,487,714**	**8,978,173**
Total assets		**10,339,830**	**10,972,548**
Non-trade payables		7,135	18,909
Non-trade payables – Group		1,763	1,797
Deferred income and accrued expenses		90,740	64,581
Deferred income and accrued expenses – Group		495	126
Interest-bearing liabilities	5	—	499,775
Total current liabilities		**100,133**	**585,188**
Interest-bearing liabilities	5	700,034	700,052
Interest-bearing liabilities – Group	5	510,675	—
Total non-current liabilities		**1,210,709**	**700,052**
Total liabilities		**1,310,842**	**1,285,240**
Share capital	7	265,769	1,990,679
Legal reserves			
Legal reserves from capital contribution	7	30,430	30,430
Legal reserves from retained earnings	7	1,000,000	1,000,000
Free reserves			
Other reserves	7	—	540,072
Retained earnings	7	7,327,872	5,647,858
Net income		1,924,811	2,973,717
Own shares	7	(1,519,894)	(2,495,448)
Total stockholders' equity		**9,028,988**	**9,687,308**
Total liabilities and stockholders' equity		**10,339,830**	**10,972,548**

Cash Flow Statement

Year ended December 31 (CHF in thousands)	Note	2016	2015
Operating activities:			
Net income		1,924,811	2,973,717
Adjustments to reconcile net income to net cash provided by operating activities			
Reversal of amortization other assets		1,831	1,840
Change in valuation of bonds	5	207	265
Changes in operating assets and liabilities:			
Receivables		3,580	205
Current liabilities		14,720	48,991
Net cash provided by operating activities		1,945,149	3,025,018
Investing activities:			
Loans granted to group companies	5	(510,675)	—
Net cash provided by investing activities		(510,675)	—
Financing activities:			
Repayment of Bond 2011–2016	5	(500,000)	—
New Loan granted by group companies	5	510,675	—
Purchase of own shares	7	(1,254,379)	(1,441,493)
Delivery of own shares	7	251,809	114,115
Dividends paid	7	(1,580,561)	(1,610,094)
thereof from Legal reserves from capital contribution	7	—	(1,232,575)
thereof from nominal value reduction	7	(1,580,561)	(377,519)
Net cash used in financing activities		(2,572,456)	(2,937,472)
Net change in cash and equivalents		(1,137,982)	87,546
Cash and equivalents, opening balance		1,980,052	1,892,506
Cash and equivalents, closing balance		842,070	1,980,052

Notes to Financial Statements

Note 1
General

ABB Ltd, Zurich, Switzerland (the Company) is the parent company of the ABB Group. Its unconsolidated financial statements are prepared in accordance with Swiss law and serve as complementary information to the consolidated financial statements.

The financial statements have been prepared in accordance with Article 957 et seqq. of Title 32 of the Swiss Code of Obligations.

Group companies are all companies in which the Company, directly or indirectly, has more than 50% of the voting rights or over which it exerts a significant influence. A Group company is fully consolidated.

Note 2
Cash deposit with ABB Group Treasury Operations

The Company deposits available cash in Swiss francs with Group Treasury Operations. The deposits are stated at the lower of cost or fair value.

Note 3
Participation

December 31, 2016 and 2015				
Company name	Purpose	Domicile	Share capital	Ownership and voting rights
ABB Asea Brown Boveri Ltd	Holding	CH-Zurich	CHF 2,768,000,000	100%

The participation is valued at the lower of cost or fair value, using generally accepted valuation principles.

Note 4
Indirect Participations

The following tables set forth the name, country of incorporation, ownership and voting rights, as well as share capital, of the significant indirect subsidiaries of the Company, as of December 31, 2016 and 2015.

Company name/location	Country	ABB ownership and voting rights % 2016	Share capital in thousands 2016	ABB ownership and voting rights % 2015	Share capital in thousands 2015	Currency
SARPI – Société Algérienne pour la réalisation de projets industriels, Alger	Algeria	50.00	814,500	50.00	814,500	DZD
ABB S.A., Buenos Aires	Argentina	100.00	278,860	100.00	278,860	ARS
ABB Australia Pty Limited, Moorebank, NSW	Australia	100.00	131,218	100.00	131,218	AUD
ABB Group Investment Management Pty. Ltd., Moorebank, NSW	Australia	100.00	355,312	100.00	355,312	AUD
ABB N.V., Zaventem	Belgium	100.00	13,290	100.00	13,290	EUR
ABB Ltda., Osasco	Brazil	100.00	689,793	100.00	994,708	BRL
ABB Bulgaria EOOD, Sofia	Bulgaria	100.00	65,110	100.00	65,110	BGN
ABB Canada Holding Limited Partnership, Saint-Laurent, Quebec	Canada	100.00	—	100.00	—	CAD
ABB Inc., Saint-Laurent, Quebec	Canada	100.00	—[1]	100.00	—[1]	CAD
Thomas & Betts Limited, Saint-Jean-sur-Richelieu, Quebec	Canada	100.00	—[1]	100.00	—[1]	CAD
ABB S.A., Santiago	Chile	—[3]	—[3]	100.00	4,741,936	CLP
ABB Beijing Drive Systems Co. Ltd., Beijing	China	90.00	5,000	90.00	5,000	USD
ABB (China) Ltd., Beijing	China	100.00	310,000	100.00	310,000	USD
ABB Engineering (Shanghai) Ltd., Shanghai	China	100.00	40,000	100.00	40,000	USD
ABB High Voltage Switchgear Co. Ltd., Beijing	China	60.00	11,400	60.00	11,400	USD
ABB Xiamen Low Voltage Equipment Co. Ltd., Xiamen	China	100.00	15,800	100.00	15,800	USD
ABB Xiamen Switchgear Co. Ltd., Xiamen	China	64.30	23,500	64.30	23,500	USD
ABB Xinhui Low Voltage Switchgear Co. Ltd., Xinhui	China	90.00	6,200	90.00	6,200	USD
ABB s.r.o., Prague	Czech Republic	100.00	400,000	100.00	400,000	CZK
ABB A/S, Skovlunde	Denmark	100.00	100,000	100.00	100,000	DKK
ABB for Electrical Industries (ABB ARAB) S.A.E., Cairo	Egypt	100.00	353,479	100.00	353,479	EGP
Asea Brown Boveri S.A.E., Cairo	Egypt	100.00	166,000	100.00	116,000	USD
ABB AS, Jüri	Estonia	100.00	1,663	100.00	1,663	EUR
ABB Oy, Helsinki	Finland	100.00	10,003	100.00	10,003	EUR
ABB France, Cergy Pontoise	France	99.83	25,778	99.83	25,778	EUR
ABB S.A., Cergy Pontoise	France	100.00	45,921	100.00	45,921	EUR
ABB AG, Mannheim	Germany	100	167,500	—[3]	—[3]	EUR
ABB Automation GmbH, Mannheim	Germany	100.00	15,000	100.00	15,000	EUR
ABB Automation Products GmbH, Ladenburg	Germany	100.00	10,620	100.00	10,620	EUR
ABB Beteiligungs- und Verwaltungsges. mbH, Mannheim	Germany	100.00	61,355	100.00	61,355	EUR
ABB Stotz-Kontakt GmbH, Heidelberg	Germany	100.00	7,500	100.00	7,500	EUR
Busch-Jaeger Elektro GmbH, Lüdenscheid	Germany	100.00	1,535	100.00	1,535	EUR
ABB Holding Ltd., Hong Kong	Hong Kong	100.00	27,887	100.00	27,887	HKD
ABB (Hong Kong) Ltd., Hong Kong	Hong Kong	100.00	20,000	100.00	20,000	HKD
ABB Global Industries and Services Private Limited, Bangalore	India	100.00	408,930	100.00	608,930	INR
ABB India Limited, Bangalore	India	75.00	423,817	75.00	423,817	INR
ABB S.p.A., Milan	Italy	100.00	110,000	100.00	110,000	EUR
Power-One Italy S.p.A., Terranuova Bracciolini (AR)	Italy	100.00	22,000	—[3]	—[3]	EUR
ABB K.K., Tokyo	Japan	100.00	1,000,000	100.00	1,000,000	JPY

Company name/location	Country	ABB ownership and voting rights % 2016	Share capital in thousands 2016	ABB ownership and voting rights % 2015	Share capital in thousands 2015	Currency
ABB Ltd., Seoul	Korea, Republic of	100.00	18,670,000	100.00	18,670,000	KRW
ABB Holdings Sdn. Bhd., Subang Jaya	Malaysia	100.00	4,490	100.00	4,490	MYR
ABB Malaysia Sdn. Bhd., Subang Jaya	Malaysia	100.00	3,500	100.00	3,500	MYR
ABB Mexico S.A. de C.V., San Luis Potosi SLP	Mexico	100.00	633,368	100.00	633,368	MXN
Asea Brown Boveri S.A. de C.V., San Luis Potosi SLP	Mexico	100.00	667,686	100.00	667,686	MXN
ABB B.V., Rotterdam	Netherlands	100.00	9,200	100.00	9,200	EUR
ABB Capital B.V., Rotterdam	Netherlands	100.00	1,000	100.00	1,000	USD
ABB Finance B.V., Rotterdam	Netherlands	100.00	20	100.00	20	EUR
ABB Holdings B.V., Rotterdam	Netherlands	100.00	119	100.00	119	EUR
ABB Investments B.V., Rotterdam	Netherlands	100.00	100	100.00	100	EUR
Thomas & Betts Netherlands B.V., Barendrecht	Netherlands	—[3]	—[3]	100.00	227	EUR
ABB AS, Billingstad	Norway	100.00	250,000	100.00	250,000	NOK
ABB Holding AS, Billingstad	Norway	100.00	240,000	100.00	240,000	NOK
ABB Sp. z o.o., Warsaw	Poland	99.92	350,656	99.92	350,656	PLN
ABB Ltd., Moscow	Russian Federation	100.00	5,686	100.00	5,686	RUB
ABB Contracting Company Ltd., Riyadh	Saudi Arabia	65.00	40,000	65.00	40,000	SAR
ABB Electrical Industries Ltd., Riyadh	Saudi Arabia	65.00	168,750	65.00	168,750	SAR
ABB Holdings Pte. Ltd., Singapore	Singapore	100.00	32,797	100.00	32,797	SGD
ABB Pte. Ltd., Singapore	Singapore	100.00	28,842	100.00	28,842	SGD
ABB Holdings (Pty) Ltd., Longmeadow	South Africa	100.00	4,050	100.00	4,050	ZAR
ABB South Africa (Pty) Ltd., Longmeadow	South Africa	74.91	1	74.91	1	ZAR
Asea Brown Boveri S.A., Madrid	Spain	100.00	33,318	100.00	33,318	EUR
ABB AB, Västerås	Sweden	100.00	400,000	100.00	400,000	SEK
ABB Norden Holding AB, Västerås	Sweden	100.00	2,344,783	100.00	2,344,783	SEK
ABB Information Systems Ltd., Zurich	Switzerland	100.00	500	100.00	500	CHF
ABB Investment Holding GmbH, Zurich	Switzerland	100.00	92,054	100.00	92,054	CHF
ABB Management Services Ltd., Zurich	Switzerland	100.00	571	100.00	571	CHF
ABB Schweiz AG, Baden	Switzerland	100.00	55,000	100.00	55,000	CHF
ABB Turbo Systems AG, Baden	Switzerland	100.00	10,000	100.00	10,000	CHF
ABB LIMITED, Bangkok	Thailand	100.00	1,034,000	100.00	1,034,000	THB
ABB Elektrik Sanayi A.Ş., Istanbul	Turkey	99.95	13,410	99.95	13,410	TRY
ABB Industries (L.L.C.), Dubai	United Arab Emirates	49.00[2]	5,000	49.00[2]	5,000	AED
ABB Holdings Limited, Warrington	United Kingdom	100.00	226,014	100.00	226,014	GBP
ABB Limited, Warrington	United Kingdom	100.00	120,000	100.00	120,000	GBP
ABB Finance (USA) Inc., Wilmington, DE	United States	100.00	1	100.00	1	USD
ABB Holdings Inc., Cary, NC	United States	100.00	2	100.00	2	USD
ABB Inc., Cary, NC	United States	100.00	1	100.00	1	USD
ABB Treasury Center (USA), Inc., Wilmington, DE	United States	100.00	1	100.00	1	USD
Baldor Electric Company, Fort Smith, AR	United States	100.00	—	100.00	—	USD
Edison Holding Corporation, Wilmington, DE	United States	100.00	10	100.00	10	USD
Power-One Renewable Energy Solutions LLC, Wilimgton, DE	United States	—[3]	—[3]	100.00	—	USD
Thomas & Betts Corporation, Knoxville, TN	United States	100.00	1	100.00	1	USD
Verdi Holding Corporation, Wilmington, DE	United States	100.00	—	100.00	—	USD

Note 5
Interest-bearing liabilities

December 31 (CHF in thousands)			2016	2015
Bonds 2011–2016 1.25% coupon		nominal value	—	500,000
		discount on issuance	—	(225)
Bonds 2012–2018 1.5% coupon		nominal value	350,000	350,000
Bonds 2011–2021 2.25% coupon		nominal value	350,000	350,000
		premium on issuance	34	52
Fixed rate loan, $500 million	Group		510,675	—
Total			**1,210,709**	**1,199,827**
thereof current liabilities			—	499,775
thereof non-current liabilities			1,210,709	700,052

The 1.5% Bonds, due 2018 and the 2.25% Bonds, due 2021, pay interest annually in arrears, at fixed annual rates of 1.5% and 2.25%, respectively. The Company has the option to redeem the bonds prior to maturity, in whole, at par plus accrued interest, if 85% of the aggregate principle amount of the bonds has been redeemed or purchased and cancelled. The 1.25% Bonds paid interest in arrears, as fixed annual rate of 1.25% and were repaid in October 2016.

The bonds, issued prior to January 1, 2013, are stated at their nominal value less any discount or plus any premium on issuance. Bonds are accreted/amortized to par over the period to maturity.

The Company has, through Group Treasury Operations, entered into an interest rate swap with a bank to effectively convert the bonds maturing 2021 into floating rate obligations.

In 2016, the Company entered into a fixed loan agreement of USD 500 million with Group Treasury Operations to hedge the USD 500 million loan granted to a Group company. The average interest in 2016 was 1.65%.

Note 6
Contingent liabilities

The Company has issued a support letter to a surety institution for the issuance of surety bonds on behalf of Group companies. The amount issued under this letter was CHF 766,013 thousand as of December 31, 2016 and CHF 741,900 thousand as of December 31, 2015.

Furthermore, the Company has keep-well agreements with certain Group companies. A keep-well agreement is a shareholder agreement between the Company and a Group company. These agreements provide for maintenance of a minimum net worth in the Group company and the maintenance of 100% direct or indirect ownership by the Company.

The keep-well agreements additionally provide that if at any time the Group company has insufficient liquid assets to meet any payment obligation on its debt (as defined in the agreements) and has insufficient unused commitments under its credit facilities with its lenders, the Company will make available to the Group company sufficient funds to enable it to fulfill such payment obligation as it falls due. A keep-well agreement is not a guarantee by the Company for payment of the indebtedness, or any other obligation, of a Group company. No party external to the ABB Group is a party to any keep-well agreement.

In addition, the Company has provided certain guarantees securing the performance of Group companies in connection with commercial paper programs, indentures or other debt instruments to enable them to fulfill the payment obligations under such instruments as they fall due. The amount guaranteed under these instruments was CHF 5,918,680 thousand as of December 31, 2016 and CHF 5,727,720 thousand as of December 31, 2015.

Furthermore, the Company is the guarantor in the Group's USD 2 billion multicurrency revolving credit facility, maturing in 2020 but no amounts were outstanding at December 31, 2016 and 2015.

The Company through certain of its direct and indirect subsidiaries is involved in various regulatory and legal matters. The Company's direct and indirect subsidiaries have made certain related accruals as further described in "Note 15 Commitments and contingencies" to the Consolidated Financial Statements of ABB Ltd. As described in the note, there could be material adverse outcomes beyond the accrued liabilities.

The Company is part of a value added tax Group and therefore is jointly liable to the Swiss Federal Tax Department for the value added tax liabilities of the other members.

Note 7
Stockholders' equity

		Legal reserves		Free reserves				
(CHF in thousands)	Share capital	from capital contribution	from retained earnings	Other reserves	from retained earnings	Net income	Own shares	Total
Opening balance as of January 1, 2016	1,990,679	30,430	1,000,000	540,072	5,647,858	2,973,717	(2,495,448)	9,687,308
Allocation to retained earnings					2,973,717	(2,973,717)		—
Cancellation of shares	(86,000)			(598,421)	(1,293,703)		1,978,124	—
Par value reduction	(1,638,910)			58,349				(1,580,561)
Purchases of own shares							(1,254,379)	(1,254,379)
Delivery of own shares							251,809	251,809
Net income for the year						1,924,811		1,924,811
Closing balance as of December 31, 2016	265,769	30,430	1,000,000	—	7,327,872	1,924,811	(1,519,894)	9,028,988

As a result of the Swiss corporate tax reform II that became effective on January 1, 2011, qualifying contributions from the shareholders exceeding the nominal share capital can be distributed without deduction of Swiss withholding tax. Accordingly, such contributions have been recorded in a specific account (legal reserves from capital contribution) within the legal reserves in order to benefit from the favorable tax treatment.

Share capital as of December 31, 2016	Number of registered shares	Par value (CHF)	Total (CHF in thousands)
Issued shares	2,214,743,264	0.12	265,769
Contingent shares	304,038,800	0.12	36,485
Authorized shares	200,000,000	0.12	24,000

Share capital as of December 31, 2015	Number of registered shares	Par value (CHF)	Total (CHF in thousands)
Issued shares	2,314,743,264	0.86	1,990,679
Contingent shares	304,038,800	0.86	261,473
Authorized shares	200,000,000	0.86	172,000

The own shares are valued at acquisition cost. During 2016, a loss from the delivery of own shares of CHF 38,990 thousand was recorded in the income statement under finance expense. During 2015, a loss from the delivery of own shares of CHF 11,087 thousand was recorded, in contrast to 2016, in other reserves.

During 2016, a bank holding call options related to ABB Group's management incentive plan (MIP) exercised a portion of these options. Such options had been issued in 2012 by the Group company that facilitates the MIP at fair value and had a strike price of CHF 15.75. At issuance, the Group company had entered into an intercompany option agreement with the Company, having the same terms

and conditions to enable it to meet its future obligations. As a result of the exercise by the bank, the Company issued 8,892,770 shares at CHF 15.75 out of own shares.

During 2015, a bank holding call options related to ABB Group's management incentive plan (MIP) exercised a portion of these options. Such options had been issued in 2009 and 2012 by the Group company that facilitates the MIP at fair value and had a strike price of CHF 19.00 and CHF 15.75, respectively. At issuance, the Group company had entered into an intercompany option agreement with the Company, having the same terms and conditions to enable it to meet its future obligations. As a result of the exercise by the bank, the Company issued 4,569,100 and 714,450 shares at CHF 19.00 and CHF 15.75, respectively, out of own shares.

The ABB Group has an annual employee share acquisition plan (ESAP) which provides share options to employees globally. To enable the Group company that facilitates the ESAP to deliver shares to employees who have exercised their stock options, the Group company entered into an agreement with the Company to acquire the required number of shares at their then market value from the Company. Consequently in November 2016 and 2015, respectively, the Company issued, out of own shares, to the Group company, 2,647,151 and 30,003 shares at CHF 21.01 and CHF 20.76, respectively.

In 2016 and 2015, the Company transferred 851,773 and 706,963 own shares at an average acquisition price per share of CHF 20.36 and CHF 20.77, respectively, to fulfill its obligations under other share-based arrangements.

Between September 2014 and September 2016, the Company executed a share buyback program for the purchase of up to USD 4 billion of its own shares and on September 30, 2016, announced that it had completed this program. Over the period of the share buyback, the Company purchased a total of 146.6 million shares (for approximately CHF 2.9 billion) for cancellation and 24.7 million shares (for approximately CHF 0.5 billion) to support its employee share programs.

At the AGM in April 2016, shareholders approved the proposal of the Board of Directors to reduce the share capital of the Company by cancelling 100 million treasury shares which were acquired under the share buyback program. This cancellation was completed in July 2016, resulting in a decrease in Treasury stock (own shares) of CHF 1,978 million and a corresponding combined decrease in share capital, other reserves and retained earnings.

In October 2016, the Company announced a new share buyback program for the purchase of up to USD 3 billion of its own shares from 2017 to 2019.

The movement in the number of own shares during the year was as follows:

	2016		2015	
	Number of shares	Average acquisition price per share CHF	Number of shares	Average acquisition price per share CHF
Opening balance as of January 1	123,118,123	20.27	55,843,639	21.12
Purchases for employee share programs	4,940,000	18.77	13,050,000	19.78
Purchases for cancellation	60,370,000	19.24	60,245,000	19.64
Cancellation	(100,000,000)	19.78		
Delivery	(12,391,694)	20.32	(6,020,516)	20.80
Closing balance as of December 31	76,036,429	19.99	123,118,123	20.27
Thereof pledged for MIP	11,033,117		10,726,465	

Note 8
Dividend income

The dividend payment from ABB Asea Brown Boveri Ltd was lower in 2016 because the Company needed less cash for the share buyback program and the dividend payment to the Company's shareholders.

Note 9
Other operating income

Other operating income includes mainly outgoing charges for division management services and guarantee compensation fees to Group companies.

Note 10
Significant shareholders

Investor AB, Sweden, held 232,165,142 ABB Ltd shares as of December 31, 2016 and 2015, respectively. This corresponds to 10.48 percent and 10.03 percent of ABB Ltd's total share capital and voting rights as registered in the Commercial Register on December 31, 2016 and 2015, respectively.

Pursuant to its disclosure notices, Cevian Capital II GP Limited, Channel Islands, announced that, on behalf of its general partners it held 115,868,333 and 132,196,131 ABB Ltd shares as of February 23, 2017 and September 13, 2016 which corresponds to 5.23 percent and 5.97 percent of ABB Ltd's total share capital and voting rights as registered in the Commercial Register on December 31, 2016. As of July 24, 2015, it announced it held 119,377,120 ABB Ltd shares which corresponds to 5.16 percent of ABB Ltd's total share capital and voting rights as registered in the Commercial Register on December 31, 2015.

Pursuant to its disclosure notice, BlackRock, Inc., USA, disclosed that, as per July 25, 2011, it, together with its direct and indirect subsidiaries, held 69,702,100 ABB Ltd shares. This corresponds to 3.15 percent and 3.0 percent of ABB Ltd's total share capital and voting rights as registered in the Commercial Register on December 31, 2016 and 2015, respectively.

To the best of the Company's knowledge, no other shareholder holds 3 percent or more of ABB Ltd's total share capital and voting rights on December 31, 2016 and 2015, respectively.

Note 11
Shareholdings of Board and Executive Committee

At December 31, 2016 and 2015, the members of the Board of directors as of that date, held the following numbers of shares (or ADSs representing such shares):

	Total number of shares held at December 31	
Name	2016	2015
Peter Voser[1]	102,137	45,559
Jacob Wallenberg[2]	202,190	193,659
Roger Agnelli[3]	—	176,820
Matti Alahuhta	31,265	24,788
David Constable	9,295	3,229
Frederico Curado[4]	2,573	—
Robyn Denholm[4]	2,871	—
Louis R. Hughes	53,145	80,562
David Meline[4][5]	6,021	—
Satish Pai[4]	2,871	—
Michel de Rosen	79,443	146,646
Ying Yeh	30,518	25,016
Total	522,329	696,279

At December 31, 2016, the members of the Executive Committee, as of that date, held the following number of shares (or ADSs representing such shares), the conditional rights to receive ABB shares under the LTIP and options (either vested or unvested as indicated) under the MIP and unvested shares in respect of other compensation arrangements.

		Vested at December 31, 2016	Unvested at December 31, 2016			
Name	Total number of shares held at December 31, 2016	Number of vested options held under the MIP[1]	Retention shares deliverable under the 2014 retention component of the LTIP[2] (vesting 2017)	Reference number of shares deliverable under the 2015 performance components (P1 and P2) of the LTIP[2] (vesting 2018)	Reference number of shares deliverable under the 2016 performance components (P1 and P2) of the LTIP[2] (vesting 2019)	Replacement share grant for foregone benefits from former employer[3] (vesting 2018)
Ulrich Spiesshofer	344,454	—	93,846	172,465	175,881	—
Eric Elzvik	71,369	408,875	30,549	44,562	40,583	—
Jean-Christophe Deslarzes	74,767	—	30,549	51,413	56,287	65,819
Diane de Saint Victor	507,824	—	35,940	45,873	47,745	—
Frank Duggan	158,528	—	27,548	46,390	48,028	—
Greg Scheu	101,250	221,375	26, 159	45,896	43,144	—
Sami Atiya (EC member as of June 14, 2016)	—	—	—	—	37,693	—
Tarak Mehta	134,449	—	34,677	42,780	45,624	—
Bernhard Jucker	293,771	—	40,750	51,902	54,112	—
Claudio Facchin	63,795	—	31,083	42,845	47,722	—
Peter Terwiesch	46,312	—	16,457	36,698	44,969	—
Total Executive Committee members as of December 31, 2016	**1,796,519**	**630,250**	**367,558**	**580,824**	**641,788**	**65,819**

(1) Options may be settled on a one-to-one basis into shares at the ratio of 5 options for 1 share.

(2) Upon vesting, the LTIP bonus is delivered 1 percent of the value of the vested shares under the retention component (LTIP 2014) and performance components (P1 and P2 of LTIP 2015 and 2016) in shares, and the remainder in cash. However participants have the possibility to elect to receive 100 percent of the vested award in shares.

(3) The Replacement share grant is awarded [illegible] of the vested shares are delivered the participant has the right [illegible] 50 percent of the vested award in cash.

At December 31, 2015, the members of the Executive Committee, as of that date, held the following number of shares (or ADSs representing such shares), the conditional rights to receive ABB shares under the LTIP, options (either vested or unvested as indicated) under the MIP and unvested shares in respect of other compensation arrangements.

		Vested at December 31, 2015	Unvested at December 31, 2015			
Name	Total number of shares held	Number of vested options held under the MIP[1]	Retention shares deliverable under the 2013 retention component of the LTIP[2] (vesting 2016)	Retention shares deliverable under the 2014 retention component of the LTIP[2] (vesting 2017)	Reference number of shares deliverable under the 2015 performance components (P1 and P2) of the LTIP[2] (vesting 2018)	Replacement share grant for foregone benefits from former employer[3] (vesting 2016 and 2018)
Ulrich Spiesshofer	289,048	—	78,395	93,846	172,465	—
Eric Elzvik	23,768	710,125	27,071	30,549	44,562	—
Jean-Christophe Deslarzes	—	—	27,071	30,549	51,413	144,802
Diane de Saint Victor	475,446	—	31,848	35,940	45,873	—
Frank Duggan	132,896	—	25,632	27,548	46,390	—
Greg Scheu	83,901	221,375	24,830	26,159	45,896	—
Pekka Tiitinen	21,000	221,375	22,294	25,158	42,845	—
Tarak Mehta	115,977	—	25,632	34,677	42,780	—
Veli-Matti Reinikkala	202,175	—	9,810	27,674	36,010	—
Bernhard Jucker	267,848	—	37,033	40,750	51,902	—
Claudio Facchin	41,501	—	22,294	31,083	42,845	—
Peter Terwiesch	30,393	250,000	15,919	16,457	36,698	—
Total Executive Committee members as of December 31, 2015	1,683,953	1,402,875	347,829	420,390	659,679	144,802

At December 31, 2016, the following members of the Executive Committee held vested WARs and conditionally granted ABB shares under the performance component of the LTIP 2014, which at the time of vesting will be settled in cash.

	Vested at December 31, 2016	Unvested at December 31, 2016
Name	Number of fully vested WARs held under the MIP	Reference number of shares under the performance component of the 2014 launch of the LTIP (vesting 2017)
Ulrich Spiesshofer	—	51,489
Eric Elzvik	—	17,147
Jean-Christophe Deslarzes	—	17,147
Diane de Saint Victor	—	20,173
Frank Duggan	—	15,463
Greg Scheu	—	14,684
Sami Atiya (EC member as of June 14, 2016)	—	—
Tarak Mehta	—	16,139
Bernhard Jucker	—	19,548
Claudio Facchin	—	14,122
Peter Terwiesch	—	10,292
Total Executive Committee members as of December 31, 2016	—	196,204

At December 31, 2015, the following members of the Executive Committee held vested WARs and conditionally granted ABB shares under the performance component of the LTIP 2014 and 2013, which at the time of vesting will be settled in cash.

	Vested at December 31, 2015	Unvested at December 31, 2015	
Name	Number of fully vested WARs held under the MIP	Reference number of shares under the performance component of the 2013 launch of the LTIP (vesting 2016)	Reference number of shares under the performance component of the 2014 launch of the LTIP (vesting 2017)
Ulrich Spiesshofer	—	50,024	51,489
Eric Elzvik	—	16,659	17,147
Jean-Christophe Deslarzes	—	16,659	17,147
Diane de Saint Victor	—	19,599	20,173
Frank Duggan	—	15,023	15,463
Greg Scheu	—	14,553	14,684
Pekka Tiitinen	—	13,720	14,122
Tarak Mehta	—	15,023	16,139
Veli-Matti Reinikkala	—	15,091	15,534
Bernhard Jucker	—	18,992	19,548
Claudio Facchin	287,500	13,720	14,122
Peter Terwiesch	—	10,007	10,292
Total Executive Committee members as of December 31, 2015	287,500	219,070	225,860

Note 12
Full time employees

During 2016 and 2015, the Company employed on average 21 and 20 employees, respectively.

Proposed appropriation of available earnings

Proposed appropriation of retained earnings (CHF in thousands)	2016	2015
Net income for the year	1,924,811	2,973,717
Carried forward from previous year	8,621,575	5,647,858
Cancellation of shares	(1,293,703)	—
Retained earnings	**9,252,683**	**8,621,575**
Gross dividend of CHF 0.76 per share on total number of registered shares[1]	(1,683,205)	—
Balance to be carried forward	**7,569,478**	**8,621,575**

(1) Shareholders who are resident in Sweden participating in the established dividend access facility will receive an amount in Swedish kronor from ABB Norden Holding AB which corresponds to the dividend resolved on a registered share of ABB Ltd without deduction of the Swiss withholding tax. This amount however is subject to taxation according to Swedish law. However, no dividend will be paid on own shares held by ABB Ltd.

On February 8, 2017, the Company announced that the Board of directors will recommend for approval at the April 13, 2017, Annual General Meeting that a dividend of CHF 0.76 per share be distributed out of the retained earnings available, to be paid in April 2017.

Report of the Statutory Auditor on the Financial Statements

To the General Meeting of ABB Ltd, Zurich

As statutory auditor, we have audited the accompanying financial statements of ABB Ltd, which comprise the balance sheet, income statement, cash flow statement and notes (pages 211–223), for the year ended December 31, 2016.

Board of Directors' responsibility
The Board of Directors is responsible for the preparation of the financial statements in accordance with the requirements of Swiss law and the company's articles of incorporation. This responsibility includes designing, implementing and maintaining an internal control system relevant to the preparation of financial statements that are free from material misstatement, whether due to fraud or error. The Board of Directors is further responsible for selecting and applying appropriate accounting policies and making accounting estimates that are reasonable in the circumstances.

Auditor's responsibility
Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with Swiss law and Swiss Auditing Standards. Those standards require that we plan and perform the audit to obtain reasonable assurance whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers the internal control system relevant to the entity's preparation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control system. An audit also includes evaluating the appropriateness of the accounting policies used and the reasonableness of accounting estimates made, as well as evaluating the overall presentation of the financial statements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion
In our opinion, the financial statements for the year ended December 31, 2016 comply with Swiss law and the company's articles of incorporation.

Report on Key Audit Matters based on the circular 1/2015 of the Federal Audit Oversight Authority
Key audit matters are those matters that, in our professional judgement, were of most significance in our audit of the financial statements of the current period. We have determined that there are no key audit matters to communicate in our report.

Report on other legal requirements

We confirm that we meet the legal requirements on licensing according to the Auditor Oversight Act (AOA) and independence (article 728 Code of Obligations (CO) and article 11 AOA) and that there are no circumstances incompatible with our independence.

In accordance with article 728a para. 1 item 3 CO and Swiss Auditing Standard 890, we confirm that an internal control system exists, which has been designed for the preparation of financial statements according to the instructions of the Board of Directors.

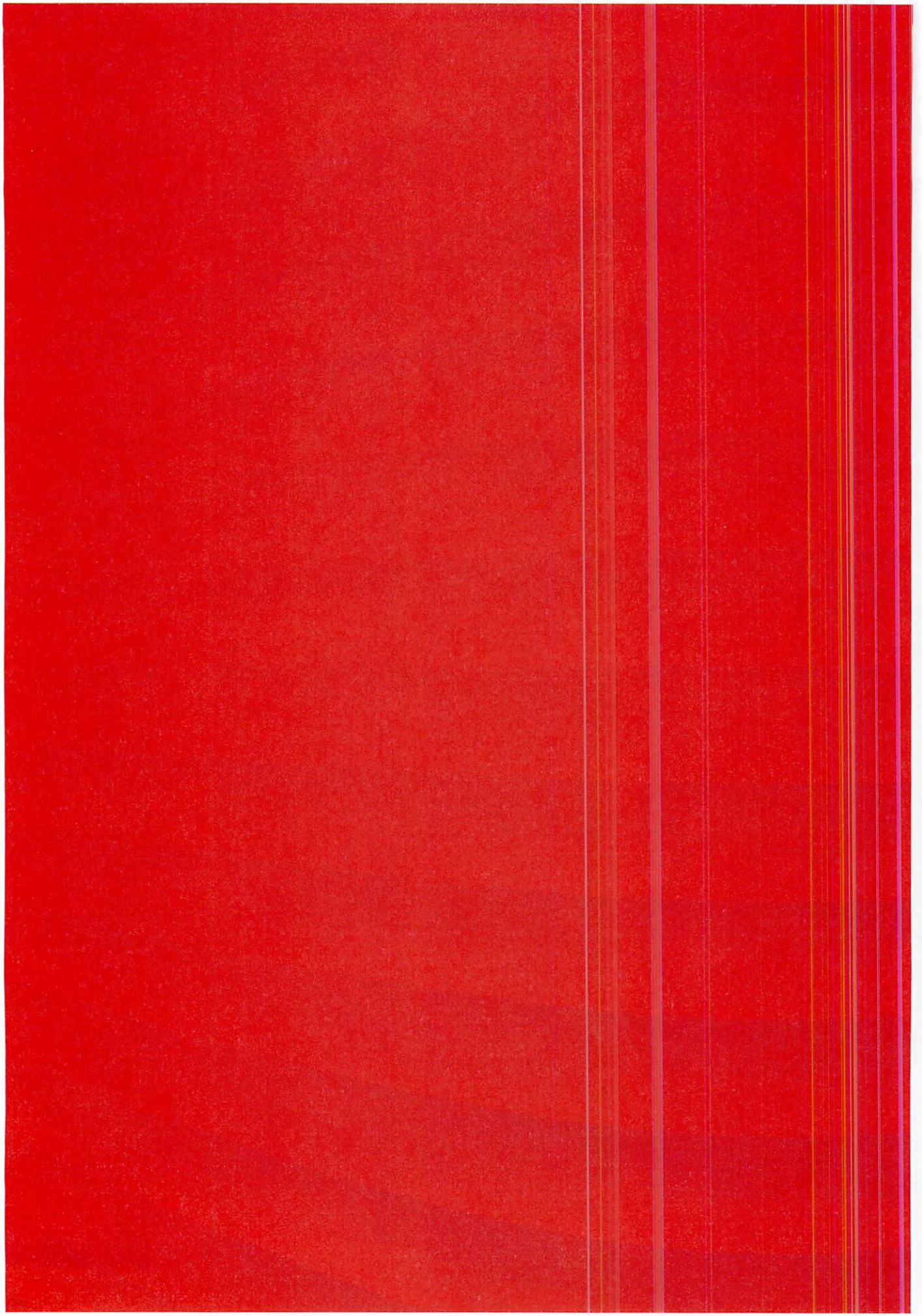
We further confirm that the proposed appropriation of available earnings complies with Swiss law and the company's articles of incorporation. We recommend that the financial statements submitted to you be approved.

Ernst & Young AG

Leslie Clifford
Licensed audit expert
(Auditor in charge)

Robin Errico
Licensed audit expert

Zurich, Switzerland
March 10, 2017



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Supplemental Information

CRAIG, BUSINESS & TECHNOLOGY LEADERSHIP, ST. LOUIS, MISSOURI, USA

So much has changed and is still changing, the methods we use to analyze the performance of transformers, the development of materials, and the way electricity is generated and distributed. These are things I really get a lot of pleasure out of.


ABB
Craig
Stiegemeier

Supplemental information

The following are definitions of key financial measures used to evaluate ABB's operating performance. These financial measures are referred to in this Annual Report and are not defined under United States generally accepted accounting principles (U.S. GAAP).

While ABB's management believes that the financial measures defined below are useful in evaluating ABB's operating results, these measures should be considered as supplemental in nature and not as a substitute for the related financial information prepared in accordance with U.S. GAAP.

For a full reconciliation of ABB's non-GAAP measures, please refer to Supplemental Reconciliations and Definitions, ABB Q4 2016 Financial Information at new.abb.com/investorrelations/financial-results-and-presentations/quarterly-results-and-annual-reports-2016

Comparable growth rates

Growth rates for certain key figures may be presented and discussed on a "comparable" basis. The comparable growth rate measures growth on a constant currency basis. Since we are a global company, the comparability of our operating results reported in U.S. dollars is affected by foreign currency exchange rate fluctuations. We calculate the impacts from foreign currency fluctuations by translating the current-year periods' reported key figures into U.S. dollar amounts using the exchange rates in effect for the comparable periods in the previous year.

Comparable growth rates are also adjusted for changes in our business portfolio. Adjustments to our business portfolio occur due to acquisitions, divestments, or by exiting specific business activities or customer markets. The adjustment for portfolio changes is calculated as follows: where the results of any business acquired or divested have not been consolidated and reported for the entire duration of both the current and comparable periods, the reported key figures of such business are adjusted to exclude the relevant key figures of any corresponding quarters which are not comparable when computing the comparable growth rate. Certain portfolio changes which do not qualify as divestments under U.S. GAAP have been treated in a similar manner to divestments. Changes in our portfolio where we have exited certain business activities or customer markets are adjusted as if the relevant business was divested in the period when the decision to cease business activities was taken. We do not adjust for portfolio changes where the relevant business has annualized revenues of less than $50 million.

Operational EBITA margin

Operational EBITA margin
Operational EBITA margin is Operational EBITA as a percentage of Operational revenues.

Operational EBITA
Operational earnings before interest, taxes and acquisition-related amortization (Operational EBITA) represents Income from operations: excluding (i) acquisition-related amortization (as defined below), (ii) restructuring and restructuring-related expenses, (iii) non-operational pension cost (as defined below), (iv) changes in pre-acquisition estimates, (v) gains and losses from sale of businesses, acquisition-related expenses and certain non-operational items, as well as (vi) foreign exchange/commodity timing differences in income from operations consisting of: (a) unrealized gains and losses on derivatives (foreign exchange, commodities, embedded derivatives), (b) realized gains and losses on derivatives where the underlying hedged transaction has not yet been realized, and (c) unrealized foreign exchange movements on receivables/payables (and related assets/liabilities). Operational EBITA is our measure of segment profit but is also used by management to evaluate the profitability of the Company as a whole.

Acquisition-related amortization
Amortization expense on intangibles arising upon acquisitions.

Operational revenues
The Company presents Operational revenues solely for the purpose of allowing the computation of Operational EBITA margin. Operational revenues are total revenues adjusted for foreign exchange/commodity timing differences in total revenues of: (i) unrealized gains and losses on derivatives, (ii) realized gains and losses on derivatives where the underlying hedged transaction has not yet been realized, and (iii) unrealized foreign exchange movements on receivables (and related assets). Operational revenues are not intended to be an alternative measure to Total Revenues, which

represent our revenues measured in accordance with U.S. GAAP.

Non-operational pension cost
Non-operational pension cost comprises the total net periodic benefit cost of defined pension benefits and other postretirement benefits but excludes the current service cost of both components. A breakdown of the components of non-operational pension cost is provided below.

Free cash flow conversion to net income

Free cash flow conversion to net income
Free cash flow conversion to net income is calculated as Free cash flow divided by Net income attributable to ABB.

Free cash flow (FCF)
Free cash flow is calculated as net cash provided by operating activities adjusted for: (i) purchases of property, plant and equipment and intangible assets, (ii) proceeds from sales of property, plant and equipment, and (iii) changes in financing and other non-current receivables, net (included in other investing activities).

Cash return on invested capital (CROI)

Cash return on invested capital (CROI)
Cash return on invested capital is calculated as Adjusted cash return divided by Capital invested.

Adjusted cash return
Adjusted cash return is calculated as the sum of (i) net cash provided by operating activities, (ii) interest paid and (iii) estimate to annualize/ eliminate the net cash provided by operating activities of certain acquisitions / (divestments).

Adjusted total fixed assets
Adjusted total fixed assets is the sum of (i) property, plant and equipment, net, (ii) goodwill, (iii) other intangible assets, net, and (iv) investments in equity-accounted companies less (v) deferred tax liabilities recognized in certain acquisitions.

Net working capital
Net working capital is the sum of (i) receivables, net, (ii) inventories, net, and (iii) prepaid expenses; less (iv) accounts payable, trade, (v) billings in excess of sales, (vi) advances from customers, and (vii) other current liabilities (excluding primarily: (a) income taxes payable, (b) current derivative liabilities, (c) pension and other employee benefits, and (d) payables under the share buyback program); and including the amounts related to these accounts which have been presented as either assets or liabilities held for sale.

Capital invested
Capital invested is the sum of (i) Adjusted total fixed assets, (ii) Net working capital and (iii) Accumulated depreciation and amortization.

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The Space for Invention

Parts of the ABB Annual Report 2016 have been translated into German and/or Swedish. Please note that the English-language version of the ABB Annual Report is the binding version

Caution concerning forward-looking statements
The ABB Annual Report 2016 includes "forward-looking statements" within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. We have based these forward-looking statements largely on current expectations, estimates and projections about the factors that may affect our future performance, including global economic conditions as well as the economic conditions of the regions and the industries that are major markets for ABB. The words "believe," "may," "will," "estimate," "continue," "target," "anticipate," "intend," "expect" and similar words and the express or implied discussion of strategy, plans or intentions are intended to identify forward-looking statements. These forward-looking statements are subject to risks, uncertainties and assumptions, including among other things, the following: (i) business risks related to the global volatile economic environment; (ii) costs associated with compliance activities; (iii) difficulties encountered in operating in emerging markets; (iv) risks inherent in large, long term projects served by parts of our business; (v) the timely development of new products, technologies, and services that are useful for our customers; (vi) our ability to anticipate and react to technological change and evolving industry standards in the markets in which we operate; (vii) changes in interest rates and fluctuations in currency exchange rates; (viii) changes in raw materials prices or limitations of supplies of raw materials; (ix) the weakening or unavailability of our intellectual property rights; (x) industry consolidation resulting in more powerful competitors and fewer customers; (xi) effects of competition and changes in economic and market conditions in the product markets and geographic areas in which we operate; (xii) effects of, and changes in, laws, regulations, governmental policies, taxation, or accounting standards and practices and (xiii) other factors described in documents that we may furnish from time to time with the US Securities and Exchange Commission, including our Annual Reports on Form 20-F. Although we believe that the expectations reflected in any such forward-looking statements are based on reasonable assumptions, we can give no assurance that they will be achieved. We undertake no obligation to update publicly or revise any forward-looking statements because of new information, future events or otherwise. In light of these risks and uncertainties, the forward-looking information, events and circumstances might not occur. Our actual results and performance could differ substantially from those anticipated in our forward-looking statements.

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