



SUSTAINABILITY REPORT 2016

Preparing for a digital world

One company

writing the future with pioneering technologies



Our Business

\$33.8 billion

revenues in 2016

132,000

employees

\$1.3 billion

invested in R&D
in 2016

55%

of revenues related to
energy efficiency, renewable
energy and eco-efficiency

97%

of employees trained
on anti-bribery principles
in 2016

390+

locations certified to
ISO 14001 and OHSAS 18001



Society

670

community projects and
charities supported in 2016

14

awards for good corporate
citizenship worldwide

1,600+

business leaders
trained through safety
masterclasses

650

managers trained on human
rights (target exceeded)

980+

in-depth supplier
sustainability assessments
since 2010

3,500+

critical suppliers trained
since 2011



Environment

9%

reduction in energy use
since 2013

280+

energy efficiency projects
under way

7%

reduction in GHG emissions
(Scope 1 + 2) in 2016

15%

reduction in water withdrawals
in water stressed areas in 2016

16%

less waste generated
than 2013

10%

reduction in VOC emissions
in 2016

ABB in summary

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.

Sustainability considerations cover how we design and manufacture products, what we offer customers, how we engage suppliers, how we assess risks and opportunities, and how we behave in the communities where we operate and towards one another, while striving to ensure the health, safety and security of our employees, contractors and others affected by our activities.

We build long-lasting, value-creating partnerships with customers, suppliers, business partners, employees and the communities in which we operate.

Our sustainability performance reporting is guided by the Global Reporting Initiative's (GRI) G4 Guidelines. A summary table of numerical performance indicators is included. The independent assurance provider DNV GL has provided assurance of selected indicators and reviewed key data and claims in the report. Its assurance statement appears on page 64 of this report.

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While this report provides certain information with respect to ABB products, services, technologies and standards of conduct, its contents must not be construed as constituting an expressed or implied warranty or representation.

To download this report in PDF format or to experience our interactive microsite, please visit ABB Group's Sustainability portal at www.abb.com/sustainability.

Sustainability Report 2016

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CEO LETTER

Transforming our business to meet the challenges of tomorrow

Sustainability is an integral part of ABB's business and of our Next Level strategy, which aims to create sustainable value for all of our stakeholders, including customers, investors and society as a whole.

To live up to that ambition, we have defined the specific goal of being recognized as a world leader in sustainability by 2020, based on the value we create as well as the advantages derived from robust risk management. A series of Group-wide objectives, encompassing a broad range of sustainable behavior and practices, was drawn up in 2013 to help us reach our 2020 goal (see page 10). As we near the half-way stage, now is an opportune moment to take stock of our successes and ongoing challenges.

ABB has been undergoing a deep and strategic transformation since we launched our Next Level strategy in 2014. We have shaped our four divisions into entrepreneurial market leaders in their respective businesses, created a leaner, more agile and efficient company, and positioned ABB as a key player in the Energy and Fourth Industrial Revolutions. Today, we are partner of choice for electrification of all consumption points, robotics and intelligent motion solutions, industrial automation, and for a stronger, smarter and greener power grid. With our high-voltage direct current (HVDC) transmission technology, we are bringing clean electric power to hundreds of millions of people in the Americas, Europe and Asia, while our microgrid solutions enable access to reliable and affordable electricity in remote areas and island communities. Our pioneering technology solutions for industry dramatically improve the energy efficiency and productivity of our customers' operations, while our digital offerings help customers take their businesses to the next level in terms of uptime, speed and yield.

As a technology leader, we are well positioned through our core businesses to contribute to the UN Sustainable Development Goals (SDGs), particularly those on affordable and clean energy, sustainable cities and communities, and efforts to combat climate change, as well as to meet ABB's own Sustainability Objectives.

Achievements in 2016

In 2016, I had the honor of unveiling our new smart sensor solution for low-voltage electric motors – the first of its kind – in the presence of US President Barack Obama and German Chancellor Angela Merkel at the Hanover industrial fair in Germany. The device can be easily attached to

almost any of the 300 million electric motors in service around the world today and has huge energy and cost savings potential.

Appropriately for a year in which we celebrated the 125th anniversary of ABB's birth in Switzerland, we provided the energy-efficient power and control systems that lie at the heart of the new Gotthard base tunnel – at 57km, the longest and deepest rail tunnel in the world.

And underlining the importance of renewable energy, Solar Impulse – supported by ABB engineers – completed the first round-the-world flight, powered only by energy from the sun. It was an historic achievement which clearly demonstrated that with pioneering spirit and clean technologies, we can run the world without consuming the earth.

We continued our efforts to drive and support global action on emissions at the COP22 climate change conference in Marrakesh, Morocco, where we championed energy efficiency, and highlighted the potential of renewables and microgrids.

Leadership in the digital revolution

As a leader in robotics and industrial automation, ABB has long been mindful of the societal impact of its technologies. In industry, robots are freeing workers from strenuous, dangerous and monotonous jobs and, by raising productivity, having a positive effect on employment. ABB's view is that the Fourth Industrial Revolution will help to further alleviate poverty, while raising living standards by bringing down the price of essential goods and services. Hence, like the energy revolution, it will be a key contributor to the SDGs.

But we acknowledge that the pace of change presents challenges that require more flexibility and creativity of both companies and their employees. To address this, we are working with peers to explore the needs of future education systems and, with the Global Apprenticeship Network, we will address key questions about the shape of our workforce into the future.

At ABB, we are well-advanced in preparing our organization and workforce for the new industrial era. We have streamlined our headquarters and management structure and established global and regional service centers to provide professional back office support for our businesses.



ULRICH SPIESSHOFER
CHIEF EXECUTIVE OFFICER

A handwritten signature in black ink, reading "Ulrich Spiesshofer". The signature is written in a cursive, flowing style.

This has meant relocating certain roles and functions, and unfortunately some colleagues have had to leave the company. Throughout the transformation, we have done our best to find new roles for affected employees and to avoid layoffs through natural attrition. I would like to take this opportunity to thank everyone involved for their hard work, patience and professionalism.

ABB values and delivering our strategy

How we execute our strategy is just as important as delivering on our targets. To drive sustainable value creation for all our stakeholders, we live our five value pairs every day, starting with safety and integrity.

Much has been done to make workplaces safer, and to train employees and contractors how to recognize and avoid potential hazards – in offices and factories, and during work at customer sites. These efforts led to improvements in many areas in 2016, including a significant decline in our lost time incident rate.

However, we still have some way to go. Last year tragically, five people lost their lives due to safety incidents at ABB workplaces. This is totally unacceptable and we shall be redoubling our efforts in 2017 with the clear objective of eliminating fatalities altogether. One key action is the introduction of a new accountability framework to ensure complete clarity in accountabilities and responsibilities for safety in our operations.

In early 2017, 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, and reinforced our financial processes. New disciplinary measures and rules are already in effect. 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.

In other areas, we have made solid progress on our sustainability objectives, such as those relating to human rights, responsible sourcing and the use of energy and materials. You can read more about this work, as well as other areas of sustainability, elsewhere in this report.

Sustainability, like innovation, is in the DNA of ABB. In part, this is because our business has always been rooted in the efficient transmission and distribution of electricity, and in improving the uptime, speed and yield of our customers' operations in utilities, industry and transport & infrastructure. Having sustainability at the core of our value proposition means that it is managed, measured and driven from the very top of our organization. Our Sustainability Governance Board and our Group Executive Committee are one and the same, just as sustainable value creation is the ambition of our Next Level strategy.

INTERVIEW WITH MICHAEL COOKE

Embedding sustainability, building value

Michael Cooke, who joined ABB as Head of HSE and Sustainability in June 2016, takes stock and describes his vision for sustainable business at ABB.

ABB What were your first impressions of sustainability performance at ABB?

MC To deliver lasting value for the company, its customers and societal partners, sustainability needs to be embedded in the business, and its impacts managed, measured and well communicated. At ABB I see that sustainability is part of what we offer our customers, primarily through the types of products, systems and services we sell, but also through the way we interact with business partners.

Sustainability issues – ranging from eco-efficiency, and our use of materials and resources, through to health and safety, and societal impacts - are embedded in the way we do business at many levels: from research and development through to project work and supply chain.

ABB What, then, are your overall goals for sustainability in the years ahead?

MC There are many opportunities. We can go further to maximize value to the company and its stakeholders, and contribute more to the realization of the UN Sustainable Development Goals.

Medium term, our focus is on delivering our 2020 Sustainability Objectives. We have set good and challenging objectives. To further incorporate the objectives in business processes, we are establishing quarterly review of selected KPIs through our global business lines.

ABB Where will the short term focus be?

MC We currently strive to meet international health, safety and environment (HSE) standards (such as ISO 14001 and OHSAS 18001) in all our operations, and they provide the foundation of operational control and proactive continuous improvement. Currently some 390 sites hold various levels of certification against these systems via multiple country, local business unit and site-specific management systems.

The new Group Management System we are developing (the ABB Way), will drive standardization and efficiencies, avoid duplication, align businesses to common

goals, and improve awareness and understanding of HSE requirements. It will also strengthen governance processes.

ABB How will you demonstrate the value of this approach to sustainability?

MC Having listened carefully to many different stakeholders in areas such as energy efficient products and the harnessing of renewables, the business value of sustainability is clear to see. We can do more, and I believe the ABB Way will help us through more consistent reporting and interpretation of results, globally and locally. It will also provide greater visibility to some of our successes and ongoing challenges.

Complementing this work, we have defined priority areas for 2017 for the Sustainability Objectives, and you can read about these later in this report.

ABB Where do you see the main challenges to progressing the sustainability agenda?

MC I see two areas which could hold back our ability to continue our journey to a more sustainable business. The first is the business challenge - with tough markets requiring a lot of attention, we need to ensure that we don't lose the focus on sustainability, which in turn should help us create a stronger business for the future.

The second is to extract value from our efforts in this area - in terms of increased revenue but also in terms of engagement with communities we work with.

ABB Where do you see the greatest value potential?

MC I would like to see greater focus on linking our community efforts with our business strategy and for us to measure more effectively the positive social benefits we bring through our operations and products.

One example of this is our strategic focus on microgrids which help us to bring reliable and low-carbon energy supplies to places with unreliable energy sources or with no electricity at all. The provision of power helps communities to provide education, health and employment,



MICHAEL COOKE
HEAD OF HSE AND SUSTAINABILITY

which are fundamental to raising standards of living now and in the future.

ABB Looking back at the past year, can you pinpoint some of the success and challenges?

MC Sadly, we had five fatalities due to workplace safety incidents in 2016. This is very disappointing since our focus has been and will continue to be on the health and safety of our employees and contractors. We will continue to work to ensure that we prepare our people including contractors to adequately recognize and avoid existing and emerging risks. It is a reminder that despite positive performance overall in safety, real risks remain and need our continual focus to prevent tragic events from occurring.

On the more positive side, safety and integrity – the company's first value pair – are helping to underpin a culture where our people follow a basic precept of "Don't look the other way" when they see a potential or real risk,

and I have been pleased to see how this message has clearly found its way deep into the organization and is helping to shape behaviors.

Our 2016 Safety Week was also something we are proud of. More than 132,000 employees across ABB took part in over 4,000 Safety Week activities promoting safer and healthier habits, both at work and at home.

ABB ABB often speaks about safety, less about occupational health. What plans do you have in this area?

MC At ABB we already have some excellent areas of focus on occupational health, including regular health checks and vaccination programs, the proactive measurement of cardiac and other risks, ergonomics support, and other wellbeing activities and training.

But these vary in scope and effectiveness in different parts of the world. In 2017 we will launch a global health and wellbeing strategy designed to promote physical, psychological and social wellbeing, general and personal health, and resilience, including stress management.

ABB Your 2017 priorities (page 10) make clear that occupational health and safety are not your only areas of focus.

MC Amongst many other things, we are developing an eco-efficiency portfolio to replace the current energy efficiency portfolio; a project to assess the environmental and social impacts and value created by the eco-efficiency portfolio; the setting of a long-term greenhouse gas reduction target which many of our stakeholders also want to see; and the development of a Group standard on resource efficiency and waste management.

Labor and human rights are also ongoing and growing focus areas for ABB and our business. In 2016, we focused on raising awareness and standards in areas such as due diligence for projects and supply chain, as well as newly emerging issues such as human trafficking and modern slavery.

In 2017, we will broaden our sustainability focus in the supply chain, primarily through extending our Supplier Sustainability Development Program to more countries. And while we have met our initial human rights training targets for 2014-2016, we feel there is now scope for extending understanding in our business of how we can impact human rights through our daily activities. Further details will be scoped out in 2017.

ABB How does your top leadership view your plans for 2017?

MC At the end of 2016, we met with the ABB Sustainability Governance Board, effectively the Group Executive Committee, to review current performance, material issues and priorities for 2017 and beyond. We received strong backing for our priorities for 2017 and our efforts to continue building sustainability into the business.

Performance against targets 2016



Products and services



Integrity

Ambition 2020	ABB is a world leading supplier of innovative, safe and resource efficient products, systems and services that help customers increase productivity while lowering environmental impact			ABB recognized as one of the most ethical companies by customers, suppliers, investors and employees		
Targets	20% revenue increase from energy efficiency-related products, systems and services	Qualitative assessment of technology contribution to environment, profit and society	Number of R&D engineers trained in HSE checklist	100% of employees trained on integrity issues and processes	Monitoring of reporting channels, investigations, remediation and survey results	Proactive and regular communication
Status	Target to be revised					
Contribution to SDGs⁽¹⁾						
Main activities and achievements 2016	<ul style="list-style-type: none"> Expanded energy efficiency portfolio scope beyond energy efficiency and renewable energy to include resource efficiency. Revised methodology, strengthened criteria for new "eco-efficiency" portfolio 55% of revenues related to eco-efficiency portfolio in 2016 (54% in 2015, 53% in 2014) Innovations and achievements in 2016: groundbreaking new smart sensor for low voltage motors, TOSA fast-charging bus technology, world's most powerful ventilation system for Gotthard Base Tunnel, Solar Impulse completes historic voyage (see page 24) Initiated review/expansion of HSE checklist to account for recent changes in applicable ISO standards and to better cover safety aspects of manufacturing and service during design, therefore training activities postponed 			<ul style="list-style-type: none"> Launched new e-learning, Global anti-bribery essentials: Don't look the other way 96% completion rate of anti-bribery e-learning; 98% completion rate of face-to-face integrity training Rolled out new cloud-based tool for pre-approval of gifts, entertainment and expenses Rolled out global Values in Action workshops to embed ABB value pairs in the way all employees work Developed new integrity priority plan consistent with new business model and ABB value pairs Launched streamlined processes for incident investigation, to ensure consistent investigation and review practices ABB Brazil recognized as a Pro-Ethics company for the second consecutive year ABB Group maintained Ethisphere Compliance Leader Verification and Anti-Corruption Program Verification seals 		
Priorities 2017	<ul style="list-style-type: none"> Communicate criteria for and content of eco-efficiency portfolio Develop updated target for products and services objective Select and pilot method to assess key sustainability impacts of eco-efficiency portfolio Develop and roll out minimum performance standards on HSE for R&D 			<ul style="list-style-type: none"> Begin implementation of new integrity roadmap and priorities, consistent with ABB value pairs Continue to foster culture of integrity through proactive integrity training and communication 		

⁽¹⁾ Indicates which UN Sustainable Development Goals (SDGs) are impacted by the objective.
 → Read more at www.un.org/sustainabledevelopment/sustainable-development-goals/



People and society



Human rights

Ambition 2020	ABB develops, attracts and retains dedicated and skilled people from diverse backgrounds, and engages with a wide range of stakeholders, including communities, to maximize benefits for our business and society		Human rights issues are well understood and managed in all ABB operations along the value chain	
Targets	Employee engagement score	ABB community engagement tool implemented in major ABB countries	Network of sustainability employees trained on human rights by 2016	600 managers trained by end of 2016
Status				
Contribution to SDGs⁽¹⁾				
Main activities and achievements 2016	<ul style="list-style-type: none"> Implemented capability and workforce planning process across all divisions New competency model, Values in Action, rolled out globally and included in performance management processes Established shared service centers and centers of expertise to support Next Level strategy transformation Established bottom up people review sessions to support succession planning at all levels of the Group Strengthened recruitment and leadership development processes to reinforce female talent pipeline at all levels Developed new learning strategy to support new competency model and cultural transformation Employee engagement survey deferred during the transformation; HR Net Promoter Score and "Pulse" surveys used as interim proxy metrics 45 of 69 countries reporting on social activities supported community projects and reported on them in the community engagement tool 		<ul style="list-style-type: none"> Human Rights and Social Policies and Supply Chain Code of Conduct were updated to address new legislation on human trafficking and modern slavery in the value chain Internal human rights network established ahead of schedule at end of 2014. The fourth network meeting in mid-2016 addressed human trafficking and modern slavery legislation, and labor and human rights in the supply chain Management teams in Germany and South Africa, supply chain managers and key Business Unit Health, Safety and Environment managers received focused sessions on human rights during 2016 More than 650 managers trained in mainly face-to-face sessions by end of 2016 	
Priorities 2017	<ul style="list-style-type: none"> Implement new learning strategy and cultural change program to support Next Level strategy execution Continue to support WCP implementation Continue deployment of HR delivery model through shared service centers and Centers of Expertise Ensure competency model embedded in key HR processes, define people assessment strategy to support performance Expand capability and workforce planning beyond business lines to include functions Identify and leverage synergies across the 670 community projects 		<ul style="list-style-type: none"> Continue to build capacity within the company so that human rights issues are well understood and managed 	



Safe, healthy and secure operations



Responsible sourcing

Ambition 2020	Safety is a core value. All ABB operations have an excellent health, safety and security culture embedded in their day-to-day business, targeting zero incidents			Social and environmental risks and impacts of sourcing practices are well understood and managed		
Targets	Safety Observation Tour (SOT) rate = 1.2 per employee, run rate 180,000	Hazard reporting rate = 2 per employee, run rate 300,000	>95% certified Health and Safety Management Systems	Number of suppliers assessed (internal / by third party)	Total number of risks identified	Total number of risks mitigated
Status	→	→	↻	↻	↻	↻
Contribution to SDGs⁽¹⁾	3			8	12	16
Main activities and achievements 2016	<ul style="list-style-type: none"> Conducted more than 178,000 SOTs; 1.24 per employee Reported more than 620,000 hazards; 4.31 per employee Initiated development of common, Group HSE management system Certified OHS management systems at 408 of 583 reporting locations (70%), covering 81% of employees Delivered safety masterclasses to more than 1,600 business leaders across the Group Implemented HSE accountability framework to reinforce line accountability in all parts of the organization Established dedicated functional audit team and developed Group audit standard and protocols Initiated process to streamline HSE organization, from geographic network to embedded expertise in business lines Developed Group health and wellbeing strategy Held 23 face-to-face country management crisis training courses, totaling 84 in the years 2014-2016 Introduced updated travel advisory and mapping service 			<ul style="list-style-type: none"> 326 suppliers trained; 226 suppliers assessed 377 ABB employees trained on responsible sourcing 839 risks identified; 693 risks mitigated Reviewed major non-compliances to understand root cause of delays in closing corrective action plans (CAPs); strengthened training programs to address root causes Developed new problem-based training approach, piloted with 53 suppliers in three workshops in India Introduced supplier e-learning on ethics and integrity, and health and safety; ABB's Code of practice for safe working made freely available to suppliers Conducted 10 live webinars with global supply chain teams to reinforce principles and practice of responsible sourcing Continued implementation of new supplier qualification and classification process Rolled out new, mandatory Construction contractor qualification procedure to ensure contractors meet quality, safety and compliance requirements Recognized by two NGOs, Development International and Responsible Sourcing Network, for work to prevent conflict minerals entering ABB's supply chain 		
Priorities 2017	<ul style="list-style-type: none"> Implement and track new safety indicator "hazards resolved" Pilot new Group HSE management system and begin migrating existing local systems to Group standard Continue safety masterclasses; roll out key risk programs on electrical safety controls and contractor management Implement Group HSE audit program Roll out ABB Health and Wellbeing program Establish new global HSE organization, including regional centers of expertise and country HSE & sustainability boards Further global training on crisis management and project security 			<ul style="list-style-type: none"> Extend Supplier Sustainability Development Program to Bulgaria, Saudi Arabia and United Arab Emirates Launch initiative to quantify benefits achieved by suppliers, in India and Turkey Adapt internal training programs to meet the needs of the restructured supply chain function Further implementation and tracking of supplier qualification and classification process Continue improvement efforts to mitigate risk of sourcing conflict minerals 		

⁽¹⁾ Indicates which UN Sustainable Development Goals (SDGs) are impacted by the objective.
 → Read more at www.un.org/sustainabledevelopment/sustainable-development-goals/



Energy efficiency and climate change



Resource efficiency



Right materials

Ambition 2020	ABB is an industry leader in energy efficiency, use of low-carbon fuels and renewable energy; we cut greenhouse gas emissions	Materials and water use is optimized. Facilities in very scarce, scarce and water stressed areas to reduce water use by 25% by 2020; we target zero waste	We aim for materials that are long-term sustainable; hazardous substances are used in closed loops or not at all
Targets	20% decrease in energy intensity per dollar of sales from 2013 (MWh/million \$)	Cut water consumption by 25% in water scarce and water stressed areas	Reduce waste sent for final disposal by 20% Reduce amount and type of hazardous substances used/emitted EU REACH compliance
Status			
Contribution to SDGs⁽¹⁾			
Main activities and achievements 2016	<ul style="list-style-type: none"> 9% reduction in energy consumption since 2013 Country energy saving plans in place for 40 countries, covering 99% of ABB energy use More than 280 energy saving projects under way at ABB sites 99 sites with energy management systems, 48 certified to ISO 50001 or EN 16247 Energy intensity increased by 13% from 2013 baseline; energy saving activities overtaken by decline in revenues and lower capacity utilization 130 GWh (7.9%) of electricity from renewable sources; conducted internal feasibility study on use of less carbon intensive energy 7% decrease in greenhouse gas emissions in 2016, 11% since 2013 baseline year 	<ul style="list-style-type: none"> 6% reduction in water withdrawals globally; 15% reduction in water stressed areas in 2016 Updated, simplified and rolled out ABB Water Tool and trained environmental network 18% of waste sent for final disposal (20% in 2013) 16% less waste generated in 2016 than 2013 baseline Completed analysis of existing waste practices across ABB Developed and released guideline on good practice in material flows/ resource efficiency relevant to ABB's business (designed to reduce use of original material and increase recycling) Around 80 waste reduction or recycling projects under way in 2016 	<ul style="list-style-type: none"> 10% reduction in emissions of volatile organic compounds in 2016 Updated prohibited and restricted substances list in line with regulations in ABB's main markets ABB in Sweden piloted country-wide approach to identification and reduction of hazard substances Developed further training on application of REACH and RoHS, delivered to REACH network and other functions including supply chain and sales More than 40 projects under way to reduce hazardous substances and VOC emissions
Priorities 2017	<ul style="list-style-type: none"> Track progress of energy management programs via quarterly KPI Establish long-term greenhouse gas reduction target Continue to increase use of low carbon fuels and renewable energy Control and further reduce SF₆ emissions 	<ul style="list-style-type: none"> Track progress of recycling programs via quarterly KPI Continue water reduction programs at sites in water stressed areas Develop Group Standard on resource efficiency and waste management All sites required to conduct analysis of sources of waste and identify waste reduction possibilities Drive implementation of local business unit waste management plans 	<ul style="list-style-type: none"> Increase attention to material compliance issues in divisions and business units through strengthened acceptance procedures for substances / components, and substitution programs for hazardous substances Strengthen systems to keep track of chemicals used in ABB, to improve strategic planning and preparation for possible restrictions on business critical substances

ABB in India

Sustainability in action

As ABB moves ahead with its Next Level strategy, both global and local market developments, needs and expectations are being anticipated and closely monitored. ABB's operations and activities in a country such as India have to be aligned with global objectives and meet country-specific business and sustainability requirements.

ABB has been manufacturing in India for more than 60 years and is well positioned to meet the government's ambitious plans for sustainable growth in the coming years. With about 10,000 employees in more than 40 manufacturing sites and offices, as well as a major corporate research center and a new global business services center, ABB is supporting the government's vision for sustainable development, and helping customers improve energy efficiency and lower environmental impact.

The provision of power lies at the heart of India's growth plans. Underlining ABB's contribution, the company won a \$640 million order at the end of 2016 for an [1,800 kilometer transmission link](#) that will be able to meet the electricity needs of more than 80 million people. Many components and technologies will be locally manufactured and sourced, in line with the government's 'Make in India' initiative.

Among its ambitious plans, the Indian government has expanded its solar power targets considerably, aiming to produce 100 GW of solar capacity by 2022. ABB has steadily built up this business over the years to meet the demands of one of the world's fastest growing solar markets.

From airports to massive solar parks, from remote, rural microgrids to rooftops, ABB technologies are paving the way to make the government's solar vision a reality. More than 50 percent of solar energy in India currently passes through ABB solar inverters.

Innovative technologies are increasingly supporting customers to become more energy efficient and lower their environmental footprint. ABB's control systems help to run and have accelerated growth in the cement and steel sectors – two of the bedrocks of the country's infrastructure and economic growth. Similarly, ABB's motors, drives and robots are boosting energy efficiency and productivity in the food and beverage sectors.

Seen in a broader context, these business offerings form part of ABB's global efforts to help realize some of the United Nations Sustainable Development Goals (SDGs), agreed in 2015. Increased transmission and distribution of power from renewable sources of energy, as well as microgrid solutions, and the deployment of resource efficient technologies in industry and utilities accord with SDG 7, which seeks to ensure access to affordable, reliable and modern energy for all and SDG 13 which calls for urgent action to mitigate the impact of climate change.

ABB's business operations and technologies, as well as community activities to foster social progress in India, also reflect how ABB Group's Sustainability Objectives for 2020 are implemented in a country.

Among these objectives is an ongoing program to ensure that suppliers meet ABB's sustainability requirements, as well as business needs. India was one of the focus countries when ABB launched its global Supplier Sustainability Development Program in 2011. Since then, a culture of greater understanding and mutual benefit has been growing through regular assessments, support with corrective action plans where appropriate, training programs and working with suppliers on ABB's environmental, safety and labor requirements.

A company is also judged by the value it creates in the community, not just through the creation of jobs and secondary employment, but also how it contributes to societal progress.

In India, ABB has a wide range of community projects aimed at improving people's lives both around the company's sites and in remote regions.

Such projects pre-date the 2013 Companies Act and corporate social responsibility requirements placed on companies. They are a reflection of ABB's long and successful history in India, and commitment to the future of the country.



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50% of solar energy in India currently passes through ABB solar inverters.



ABB in India

Sustainability in depth 2016



Mitigating climate change

Enabling solar power to drive high-impact projects around the country



→ Read more at
abb.com/sustainability



Resource efficiency

Working to reduce resource consumption and waste generation at our production facilities across India



→ Read more at
abb.com/sustainability

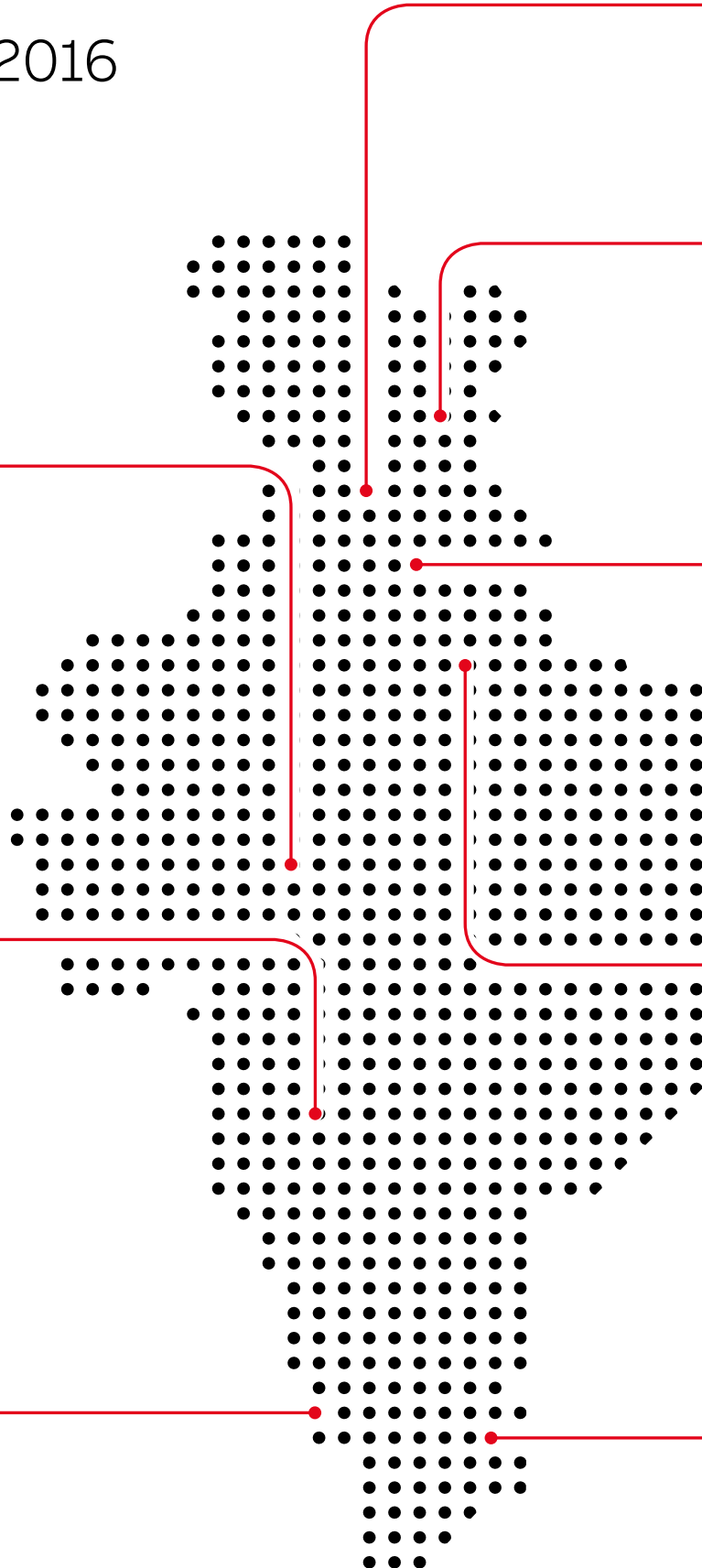


Sustainable transport

On road and rail and at key airports, ABB technologies increase transport capability and cut emissions



→ Read more at
abb.com/sustainability





Energy efficiency

Products and solutions are improving productivity for some of the big brand names and industrial sectors



→ Read more at abb.com/sustainability



Responsible sourcing

Supporting our suppliers to improve their efficiency and ensure compliance with labor, environmental and health and safety regulations and norms



→ Read more at abb.com/sustainability



Community development

Helping to improve education and support healthcare are the focus in many parts of the country



→ Read more at abb.com/sustainability



Developing people

A 10,000-strong highly trained workforce is key to business success and technology innovation



→ Read more at abb.com/sustainability



Innovation

A state-of-the-art project, using innovative technologies, is powering ships from shore in a major port



→ Read more at abb.com/sustainability

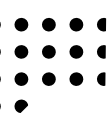
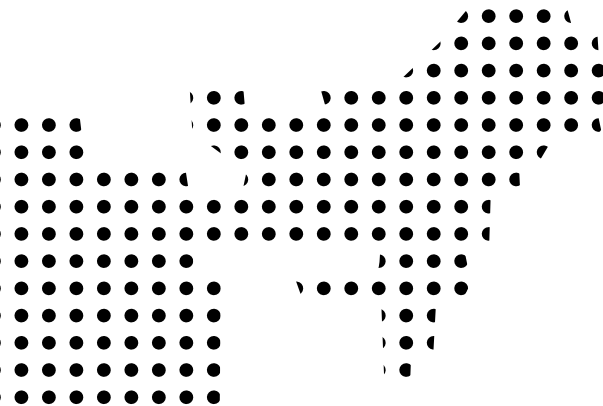




ABB TOSA

A new generation
of buses

No overhead lines and ultrafast charging times at bus stops pave the way for the next generation of silent, flexible, zero-emissions urban mass transit.

01

Our business

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This is ABB

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 and of goods and services.

Our markets

As a pioneering technology leader serving utilities, industry, and transport and infrastructure, ABB is at the heart of the Energy and Fourth Industrial Revolutions. With its leading market position in power transmission, industrial control systems, robotics, marine and electric vehicle (EV) charging, ABB helps its customers take advantage of the efficiency and performance improvements that digitalization delivers.

Utilities

The rise of renewable energy is dramatically increasing the complexity of the electricity grid, as the number of feed-in points from solar and wind sources multiply and transmission distances lengthen. At the same time, demand for electricity is rising exponentially, driven by massive increases in the volume of data and the accelerating take-up of electric vehicles.

For utilities, these developments pose huge challenges: on sunny and windy days, energy production typically surges, and may threaten to overwhelm the grid, only to drop precipitously when the sun goes down and the wind stops blowing. Balancing such intermittency requires a complex combination of technologies, from long-distance power transmission – to transport electricity to where it is needed most at any given time – to stabilizing microgrids that integrate multiple generation sources, to energy storage solutions.

For ABB, which pioneered high-voltage direct current (HVDC) transmission, and is a leader in grid stabilizing technologies, the Energy Revolution offers tremendous opportunities. Over the next 25 years, some \$7 trillion is expected to be invested in renewables globally, and by 2025 the market for microgrids should be worth \$5 billion.

Industry

In industry, the impact of digitalization is accelerating as more and more devices and systems are equipped with sensors and connected to the cloud. With the massive 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. By providing actionable information to operators, ABB's smart sensor solution (see page 25) for electric motors 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.

As a world leader in industrial robotics, with a global installed base of more than 70 million connected devices and more than 70,000 installed control systems, ABB is ideally positioned at the forefront of the Fourth Industrial Revolution. By 2020, the number of industrial robots is expected to more than double to 2.6 million compared with 1.2 million today, and there will be 26 billion connected devices worldwide.

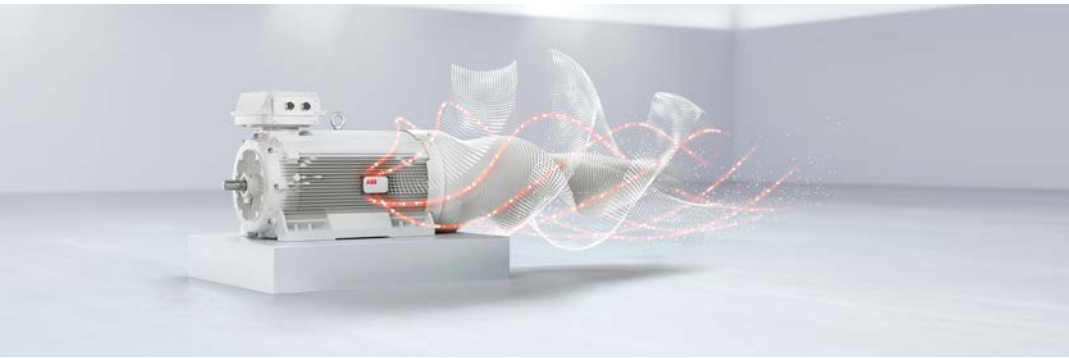
Transport and infrastructure

The technologies enabling the Energy and Fourth Industrial Revolutions are set to transform the urban environment as governments, city planners and developers seek solutions to the challenges of urban development. With two thirds of the world's population expected to be living in cities by 2050, the urban environment will increasingly be characterized by electric mobility, and low-energy smart homes.

For ABB, a world leader in fast-charging systems for electric vehicles, energy management solutions and smart home automation, the opportunities are tremendous. By 2020, the energy management and smart home markets are expected to double and triple in value to \$44 billion and \$36 billion respectively, while by 2030 50 percent of cars sold are expected to be EVs.

Delivering sustainable value

To enable us to deliver value for our customers and to provide sustainable, profitable growth for our shareholders, ABB interacts with a wide range of business partners along our value chain. We aim to build long-lasting partnerships to create shared value - with suppliers, customers, business partners, employees and the communities in which we operate.



When we source the raw materials, components and services for our operations, our strategy is to partner with best-in-class suppliers who adhere to similar standards of quality, operational excellence, business ethics, and social and environmental responsibility. ABB's Supplier Sustainability Development Program further supports performance improvement for selected suppliers, creating value for the suppliers, their employees and their local community.

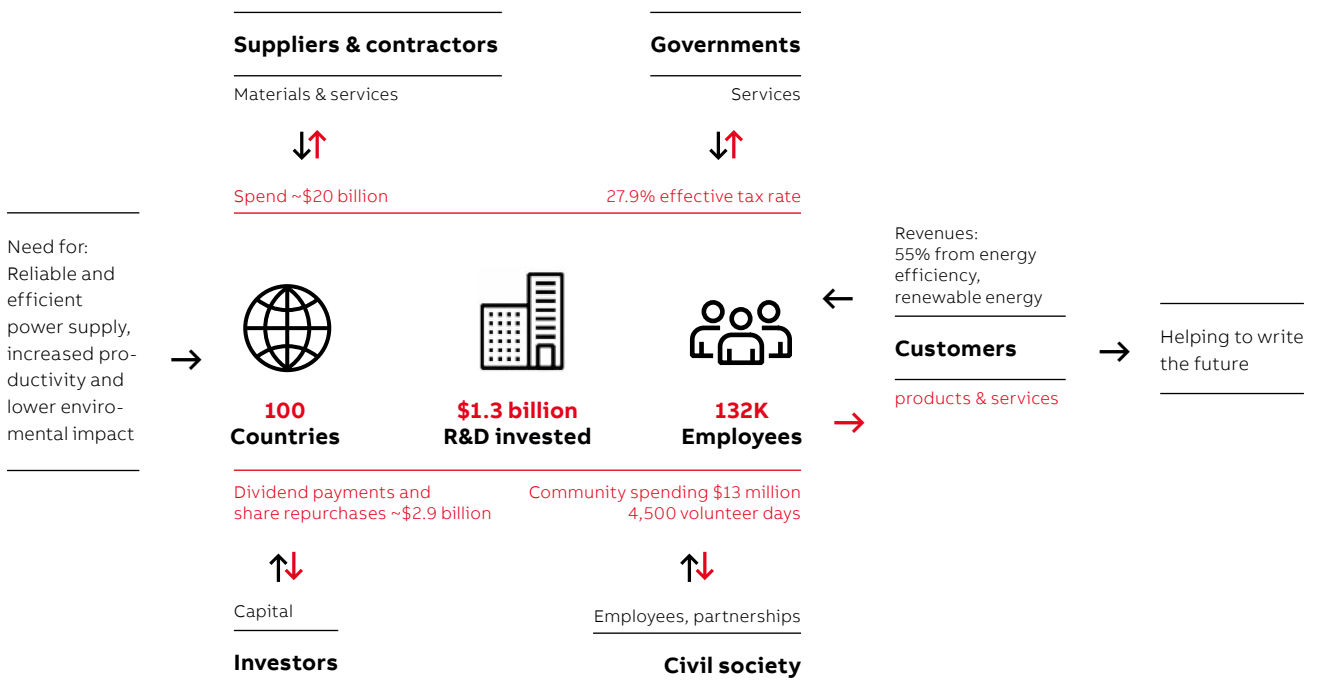
When we design and manufacture products, our processes are designed to ensure appropriate consideration of legal, strategic, customer, environmental, and health and safety requirements. Dialogue with customers, suppliers and government regulators, as well as experts from the university sector and other relevant organizations helps us to respond to our changing environment and to retain our innovative edge and to create value for our customers and society.

Governments provide the regulatory frameworks for our business, including the determination of corporate income and other taxes. These taxes are a significant source of funding for public services by government institutions worldwide. The planning of ABB's tax position reflects our corporate strategy and is consistent with applicable tax laws and international best practice guidelines such as the OECD Guidelines for Multinational Enterprises. Further information about our [tax policy](#) is available on our website.

Central to our ability to maintain technology leadership and create value is our need to attract, develop and retain the right people in the right jobs. Our interaction with different parts of society helps us to attract the best employees and secure our standing in the communities where we operate.

It is these relationships that help us to drive the future of industrial digitalization and create sustainable, mutual value.

ABB value chain



PRODUCTS AND SERVICES

Quantum leap in digital

We are on the cusp of two revolutions: a fourth industrial revolution and an energy revolution. The first is driven by an explosion of data, computing power and ubiquitous connectivity between machines and people. The second is driven by environmental and energy independence concerns.

ABB is well positioned to play a leading role in the new era. As early as the 1970s, we were already building software and connectivity into our devices and systems to improve efficiency. In fact, ABB introduced the world's first electric robot, controlled by a microprocessor, in 1972. Over several decades we have built up a wide portfolio of products and services to cope with the growing complexity of energy systems and, with the world's largest installed base of connected industrial devices, we have the ability to fully leverage digital technology, making the power of our collected knowledge count in the physical world.



>70,000,000

digitally enabled devices
connected

Industry-leading digital solutions

ABB has dedicated itself to helping customers improve three important metrics: uptime, speed and yield. One of the most significant tools in realizing this is digitalization. Whereas past breakthroughs in productivity were typically achieved on the level of devices and individual technologies, the new revolution will center on collaboration between devices and systems and across value chains. Real-time information is shared and processed digitally.

In 2016, ABB launched our industry-leading digital solutions offering, ABB Ability™, which brings together all of our digital products and services to create real business value for our customers. ABB Ability helps customers in utilities, industry, transport and infrastructure develop new processes and advance existing ones by providing insights and optimizing planning and controls for real-time operations.

The digital offerings we have developed in ABB Ability include performance management solutions for asset-intensive industries; control systems for process industries; remote monitoring service for robots, motors, and machinery; and control solutions for buildings, electric-vehicle charging networks and offshore platforms. Some

of the more specialized offerings address energy management for data centers and navigation optimization for maritime shipping fleets, among many others.

For example, the ABB Ability Asset Health Center 3.0 uses predictive and prescriptive analytics and customized models to identify and prioritize emerging maintenance needs based on failure probability and asset criticality. The ABB Ability smart sensor connects low-voltage electric motors to the industrial internet, allowing them to be monitored continuously. Early indications are that the smart sensor leads to reductions in downtime of up to 70 percent and in energy consumption by as much as 10 percent.

The ABB Ability digital substation incorporates fiber optic current sensors and disconnecting circuit breakers to reduce maintenance requirements and the need for extensive conventional cabling. The combination of electrical hardware with digital sensors and cloud computing enables grid operators to make decisions based on comprehensive, up-to-date information, while predictive algorithms can improve maintenance practices and asset management.

In the transport sphere, ABB Ability marine performance optimization is one of the former standalone systems that is now being integrated into the ABB Ability platform. Logistics companies will now be able to use one integrated control and monitoring system to keep track of ships, cargo flights, trucking operations, warehouse operations and other assets, all in one place, allowing them to identify logistical bottlenecks and take preventive action to avoid conflicts or maintenance issues, saving resources, time and money.

Pushing the boundaries of technology and innovation

To achieve these outcomes, ABB invests significantly in research and development (R&D), focusing on developing and commercializing the technologies that are of strategic importance to our future growth. In 2016, we invested \$1,300 million, or 3.8 percent of revenues, in R&D activities, along with \$155 million on order-related

development activities. To support this R&D effort, we maintain corporate research centers in seven countries (China, India, Germany, Poland, Sweden, Switzerland and the U.S.) and employ 7,900 technologists in more than 30 countries.

ABB's R&D technologists are also key to ensuring our health, safety and environmental (HSE) ambitions are designed into our products and solutions. The ABB Gate Model process defines our Group-wide approach to product and technology development and HSE aspects are built-in via a standardized Life Cycle Assessment procedure. A handbook and "HSE checklist" provide further guidance on HSE aspects during design, supported by specific training packages. In 2016, we initiated a review and expansion of the HSE checklist to account for recent changes in applicable ISO standards and to better cover safety aspects of manufacturing and service during design. Training activities related to HSE in design were therefore postponed until the checklist update is completed.

Collaboration: Sharing expertise, harnessing creativity

Even though we maintain significant R&D capabilities within ABB, the change to a digital economy is so comprehensive, touching almost all areas of business, that no single company can hope to master all aspects alone. The complexity of today's industrial ecosystem means that collaboration with other, best-in-class companies is essential. That is why we place great store on sharing our expertise with leading industry players. We recently announced a far-reaching partnership with Microsoft to develop next-generation digital solutions on an integrated cloud platform, and we continue to work closely with household names, from Hitachi to Ericsson and Volvo Buses.

ABB invests heavily in university collaborations to develop long-term disruptive technologies as well as mid- to short-term evolutionary innovations for our existing products and services. We maintain partnerships with more than 100 universities worldwide, helping us to shorten the time to turn basic ideas into viable products, as well as to attract new talent.

To make sure that we are harnessing the creativity of the next generation of researchers, we established incubators, such as the Synerleap growth hub at our R&D center in Västerås, Sweden, which fosters contacts between ABB researchers and tech start-ups working on innovative technology in the fields of industrial automation, robotics and energy. Additionally, our strategic venture capital arm, ABB Technology Ventures, invests in high potential industrial technology and energy companies aligned with ABB's mission of improving the efficiency, productivity and quality of our customers' operations while minimizing environmental impact.

We further encourage young engineering talent through a variety of awards and "innovation challenges". In 2016,

ABB announced the winner of the first ABB Research [Award in Honor of Hubertus von Grünberg](#). The prize, named after ABB's former chairman, will be awarded every three years to a pioneering post-doctoral research project. ABB in China and Malaysia also run local competitions to encourage engineering innovation, while ABB in the U.K. partnered with the IdeaHub innovation platform to seek innovations focused on variable speed drives.

Contributing to a more sustainable world

As part of our sustainability objectives, ABB committed to increase revenue from our portfolio of energy efficiency-related products, systems and services by 20 percent by 2020, from a 2013 baseline. The criteria defining the ABB energy efficiency portfolio were developed in 2011, based on the technology standards and ABB's business scope of the time.



55% of revenues
related to eco-efficiency
portfolio in 2016

Given the subsequent technology improvements, significant organic and inorganic changes in ABB's business portfolio and the launch of our Next Level strategy in 2014, we reviewed the nature of the portfolio during 2015 to account for these changes. After extensive consultation, we developed an expanded "eco-efficiency" portfolio that now includes energy efficiency, renewable energy and resource efficiency criteria. We also strengthened the methodology defining the portfolio to provide greater transparency and consistency.



→ [Read more at
abb.com/sustainability](http://abb.com/sustainability)

According to the updated criteria, 55 percent of ABB revenues were related to the eco-efficiency portfolio in 2016, with 54 percent in 2015 and 53 percent in 2014.

Considering the evolution of ABB's business to address the energy and digitalization revolutions, including the launch of ABB Ability in late 2016, as well as feedback from our stakeholders requesting a greater focus on assessment of impacts rather than on the revenue generated by the eco-efficiency portfolio, we have decided to review our stated sustainability performance indicator and target for products and services. During 2017, we will consider alternative proposals and plan to publish an updated indicator and target in our next report.

With our eco-efficiency portfolio, including industry-leading digital solutions, ABB continues to push the boundaries of technology and innovation to decouple economic growth from environmental impact and support the growth of a sustainable and resilient global economy.

Achievements and innovations in 2016

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 at 57 km. The latest energy-efficient technologies from ABB provide it 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. The current was converted by an ABB microgrid, which also controlled its highly efficient distribution and storage in rechargeable batteries, from which the high-wing plane was powered at night. 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 SMART SENSOR FOR LOW-VOLTAGE ELECTRIC MOTORS

German Chancellor Angela Merkel and US President Barack Obama were the first to experience a groundbreaking new sensor from ABB during their visit to the Hanover Fair. As guests of honor at the world's largest industrial trade show, they were shown how ABB's latest innovation allows electric motors for the first time to report their condition through a wireless internet connection.

INTERVIEW WITH GUIDO JOURET

Preparing for a digital world

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.

It's clear that digital is the way the world is going and ABB is growing as a digital company. But what does that mean for our sustainability objectives? A lot, if we view digital broadly.

Today 55 percent of ABB products already have some digital component, yet digital is about more than just software or connectivity. Only when we look at the big picture can we start to see the possibilities.

Efficiency on the up

The most obvious benefit of digital technology is increased efficiency, which of course helps ABB, our customers and the environment. When we do things digitally, we avoid waste and re-doing work. Digital sensors and the data collected can allow us, for example, to right-size our motors and drives so that customers only get as much product as they really need. An oversized solution is not only an excess cost for them, but also leads to excess energy consumption. By learning more about how customers actually use our products, we can provide more efficient solutions.

If a customer realizes we understand their business and are coming to them with products and services that are good for both their operations and the environment, I think they will be more confident in ABB.

Digital technologies also allow us to study the ABB solutions at work, such as a customer's robot assembly line, and optimize it for energy efficiency, durability, throughput or whatever the customer wants. If the customer has a good inventory of their digital assets, we can figure out how much life is left in them, when the next services should be performed to prevent unplanned downtime and essentially how to extend their lifetime. We would have a way of knowing if a transformer or a motor, expected to last several decades, is still going strong and might be good for another couple more.

Another example is of course the digital platform we're in the process of creating, which is all about efficiency and scale. This set of reusable components, like Lego bricks, allows us to build a new application or

solution tomorrow without reinventing every element of the wheel.

Thinking bigger

Digital technology can spark all kinds of innovation. Because ABB knows how to build very big solutions at scale, we can distill that know-how into smaller systems and bring the benefits to more people. In effect, digitalization can make things local again – and local is good from an overall system and efficiency point of view.

We're doing this already with microgrids. You don't have to wait for the public utility to show up because now you can connect locally and power your village. As we have seen, making everything smaller and more accessible again is very good for industrializing nations.

And what if we could do the same not just for power, but for other industries we are not even in today?

I would say that we should create more awareness of existing digital solutions, stimulate demand for new ones and try to overcome the occasional resistance to the idea of connectivity. The more our products are connected, the more value they create for customers. I actually think we have an opportunity at ABB to spell out why connected devices are a benefit to customers and, critically, what we will do with their data. We need to reassure them by distinguishing between customer identity data – which must be protected – and raw measurement data, which can help their operations run more efficiently and be benchmarked against others.

Our digital journey will help us better understand the frustrations and aspirations of our customers and create new kinds of business models, too.

Reasons for optimism

Ultimately, we know that going digital will bring about a societal transformation. Many jobs will become at least partly cybernetic (computer assisted) because certain tasks, especially those involving diagnosis and valuation, are simply done best by technology. And these innovations will no longer take generations to roll out, but years.



GUIDO JOURET
CHIEF DIGITAL OFFICER

Understandably, there are concerns about whether artificial intelligence (AI) will displace people and automate certain decisions. But it's important to remember that while software may be getting smarter, it will never be smart in the same way that people are. Digital AI software systems are extremely proficient at solving a specific problem, but not at understanding the real reason why.

If a customer realizes we understand their business and are coming to them with products and services that are good for both their operations and the environment, I think they will be more confident in ABB.

This won't go away and the need for contextual evaluation will create new opportunities for education and learning. We'll want people to know more about AI technologies and robots, and how to solve problems, make decisions and collaborate. This is a good thing and nothing less than an innovation opportunity.

Today, ABB has an even bigger opportunity to address sustainability issues in a more efficient way. Digital technology allows us to be a bit bolder, understand where our fundamental capabilities lie, look for new opportunities and hunt them in the right space. We might have to do things a bit differently than before, but I'm a big believer that we can and should be leading the charge when it comes to looking at the primary needs of society – and figuring out how to make the whole system more efficient.

GOVERNANCE AND INTEGRITY

Living our values

At ABB, how we execute our Next Level strategy is just as important as delivering on our targets. Our five value pairs form the backbone of all operations and our daily life in ABB, driving sustainable value creation for all our stakeholders.

Living our values

At ABB, how we execute our Next Level strategy is just as important as delivering on our targets. Our five value pairs form the backbone of all operations and our daily life in ABB, driving sustainable value creation for all our stakeholders.

ABB's value pairs were introduced in 2014 along with Next Level strategy and during 2016 we worked at all levels of our Group to enrich understanding of their significance. For example, the Group Leadership Forum (GLF) meeting in March 2016 was structured around the value pairs, giving ABB's top leaders a clear appreciation of how our new value pairs support the execution of our strategy and can improve performance at every level of the business.

ABB then launched a series of interactive workshops to ensure that all employees have the opportunity to explore what the value pairs mean for them and their teams. The workshops focus on bringing the values to life, leading to a common understanding of how our values help us to drive growth and performance across ABB. To reinforce the importance of living our values, ABB's short-term incentive plan now includes requirements for behavior targets related to the value pairs.



→ Read more at
abb.com/sustainability

Integrity

The value pair "Safety & Integrity" is the bedrock of our organization. We do not accept business if it means putting people at risk or engaging in unethical practices.

ABB's high standards of integrity are expected of every employee in every country where we do business. Our expectations are described in the ABB Code of Conduct and Supplier Code of Conduct, which are underpinned by a robust set of internal standards and policies. These policies include the prohibition of facilitation payments, zero-tolerance of any involvement in bribery or corruption, and robust policies on gifts, entertainment, and expenses and third party representatives.

The Codes of Conduct and underlying policies also define our wider social responsibilities as a corporate citizen. These responsibilities include compliance with applicable laws and regulations. This includes providing transparent and comprehensive information to tax administrations to facilitate their understanding of the tax-related decisions taken by ABB. Further information about our [tax policy](#), as well as our [integrity standards and policies](#) are available on our website.

Prevention

ABB's integrity program is based on three pillars: prevention, detection and resolution. Our primary focus for all employees is on training and communication, which are key to ensure that ABB's values are understood and to prevent non-compliant behavior.

Within three months of joining, every new ABB employee must complete online e-learning and face-to-face training on the ABB Code of Conduct. Thereafter, all employees must complete an integrity training cycle every two years. In addition, employees in sensitive roles receive specialized trainings for specific integrity risk subjects. All third party representatives acting on behalf of ABB must also participate in mandatory integrity training.

In 2016, more than 93,000 of the ABB employees holding email accounts (96 percent) completed the new e-learning Global Anti-Bribery Essentials: Don't look the other way, while more than 39,000 employees (98 percent of target group) completed face-to-face integrity training.

We also rolled out a new cloud-based tool for pre-approval of gifts, entertainment and expenses, helping us to provide globally consistent review and transparent advice for our employees.



97%

employees trained on
anti-bribery principles

During the year, ABB re-aligned our integrity strategies with the new structure of our businesses and our value pairs, resulting in a new integrity priority plan. We are

now investigating new technical opportunities for monitoring and reporting on these activities.

Detection

Multiple channels are available to all employees to report integrity concerns, including web-based reporting and a business ethics hotline run by a third party, available 24 hours a day, seven days a week, in over 180 languages. Reports are treated confidentially and reporters can choose to remain anonymous, with whistleblowers promised protection from retaliation. A stakeholder hotline for external business partners is also available, with details shown on our [website](#). All hotline reports are subject to initial review and are brought to full closure using systematic investigation processes and tracking systems.

Anti-bribery reviews of business units and countries are also conducted throughout the year by ABB’s internal audit department. The anti-fraud program is monitored by internal audit, which regularly evaluates fraud risk exposure and developing trends.

Multiple reporting channels



Resolution

ABB enforces a strict zero tolerance policy for violations of the law or the ABB Code of Conduct. All allegations and reported issues are appropriately investigated, exposures mitigated and disciplinary actions taken as applicable and appropriate, including termination of employment.

The Office of Special Investigations, part of ABB’s Legal and Integrity team, investigates reported integrity concerns. Where disciplinary action is required, the process is governed by ABB’s Human Resources Disciplinary

Protocol and administered by Human Resources Disciplinary Committees at headquarters and in the regions. Following a systematic review, we implemented improved processes for incident investigation and resolution during 2016, to ensure consistent practices across ABB’s global organization.

In 2016, there were no substantiated corruption cases and the company did not face any significant fines or sanctions for non-compliance with laws and regulations. For further information, please refer to the Commitments and contingencies note in the Notes to the Consolidated Financial Statements contained in the ABB Group Annual Report.

In early 2017, ABB uncovered a sophisticated criminal scheme related to a significant embezzlement and misappropriation of funds in its South Korean subsidiary. The company immediately launched a thorough investigation, involving internal and external parties. We have reinforced financial processes and new disciplinary measures and rules are already in effect.

Engagement and external recognition

ABB supports international efforts to embed integrity into the industries where we are active; ABB is a founding member of the UN Global Compact and Ethics and Compliance Switzerland and is a signatory to the Partnering Against Corruption Initiative. This engagement allows us to benchmark our internal practices against global best practice through peer exchange and learning and to participate in collective action initiatives against corruption.

ABB’s integrity program is also recognized externally. In 2016, we maintained the Ethisphere Compliance Leader Verification and Anti-Corruption Program Verification seals and for the fourth consecutive year, we were recognized as one of the World’s Most Ethical Companies. ABB in Brazil was recognized for the second year as a Pró-Ética (Pro-Ethics) company by Instituto Ethos and the Brazilian government, an initiative recognized by the OECD.

Risk management

In addition to the risk identification processes conducted by the Internal Audit and the Legal and Integrity departments, ABB maintains a global, integrated risk management process. This comprehensive top-down and bottom-up approach to Enterprise Risk Management directly involves all ABB Group functions, regions, divisions and the majority of ABB’s country organizations and global business units.

We have also integrated Group-wide sustainability criteria into our risk assessment processes for projects, our supplier selection guidelines, the due diligence processes for potential acquisitions and into our product design and development model.

 → [Read more at abb.com/sustainability](http://abb.com/sustainability)

SUSTAINABILITY GOVERNANCE

Streamlining and clarifying for better performance

Sustainability principles and considerations are embedded in ABB's business strategy and guide what we manufacture, how we operate the company and the way we behave towards our stakeholders.

These considerations help us to capitalize on market opportunities and to reduce safety, security, social and environmental risks, for the benefit of our customers, employees and all other stakeholders. ABB's sustainability vision is that, by 2020 and beyond, we will be recognized as a leading contributor to a more sustainable world through our unique business offering and sustainable business practices.

ABB's sustainability strategy is aligned with corporate strategy and is supported by objectives that address our activities and impacts along the value chain (see page 10). Progress towards our objectives is driven through all levels of ABB's business, from Executive Committee endorsement, to operational review and target setting in business units, to local training and execution at site, supported by sustainability specialists at Group, country and local level.

Sustainability policies, principles and external initiatives

We have implemented environmental, social, human rights, and health and safety policies and a Supplier Code of Conduct. These [policies](#) include references to the relevant international standards. For example, the human rights and social policies draw on the Universal Declaration of Human Rights, the ILO Core Conventions on Labor Standards, the UN Global Compact, the OECD Guidelines for Multinational Enterprises and the Social Accountability 8000 standard.

ABB has adopted ISO 14001 for environmental and OHSAS 18001 for health and safety management systems, and will transition to the newly-released ISO 45001 for health and safety. We have incorporated the principles of the International Labour Organization (ILO) guidelines on occupational health and safety management systems, and the ILO Code of Practice on Recording and Notification of Occupational Accidents and Diseases into our health and safety program.

All ABB facilities are encouraged to implement management systems for health and safety, environmental and

quality issues, while manufacturing and service sites are required to implement such systems. Globally, we have achieved external certification for health and safety management systems at 408 of 583 reporting locations, covering 81 percent of employees, and for environmental management systems at 392 locations.



390+

locations certified to ISO 14001 and OHSAS 18001

ABB is a founder member of the United Nations Global Compact (UNGC) and has been closely involved in its development. Close collaboration with the UNGC, the Global Business Initiative on Human Rights and other such organizations helps ABB's understanding of human rights and benefits our day-to-day business. We have been working to implement the UN Guiding Principles on Business and Human Rights and use the recommendations to assess expectations of corporate behavior.

During 2016, ABB amended a number of key policies and processes to extend our existing efforts to ensure there is no child or forced labor within our operations nor our value chain. These include the [ABB Supplier Code of Conduct](#), the [ABB Policy Combating Trafficking in Persons](#), our [Human Rights policy and statement](#), our [Social policy](#), our supply chain and contractor questionnaires, as well as certain internal directives and guidelines. The revised policies make clear that there is no place in ABB business or within the operations of our contractors and suppliers for modern slavery and human trafficking.

Sustainability governance structures and processes

ABB's Sustainability Board, comprising the ABB Executive Committee, oversees sustainability policies and programs, reviews developments and monitors progress towards our targets.

The ABB Health, Safety, Environment and Sustainability Affairs (HSE/SA) organization is responsible for the

development and coordination of policies and programs covering health and safety, environment, corporate responsibility and security. HSE/SA reports directly to Executive Committee Member and Chief Human Resources Officer, Jean-Christophe Deslarzes.

A network of HSE, security and sustainability specialists worldwide reports to and supports the HSE/SA management team. In countries where ABB entities have or could have significant HSE, security and sustainability impacts, we have appointed HSE managers and security managers responsible for ABB's HSE and sustainability management program and for gathering the data consolidated in this report. All regions where ABB operates have region HSE managers and security managers. The country and regional specialists are supported by site level HSE advisors.

Transformation: Streamlining and standardizing

During 2016, we continued our work to ensure that we have the right HSE and sustainability resources and structures in place to support our businesses with the implementation of the corporate Next Level strategy. Following comprehensive workforce mapping and consultation, we developed an HSE and sustainability network operating model to reflect the required resource allocations and the changes in ABB Group structure.

Consistent with the Next Level strategy to ensure business line accountability, HSE managers have now been appointed for all business units and divisions. By the end of 2017, regional and country HSE and sustainability organizations will transition to virtual HSE/SA Centers of Expertise (CoE). The CoEs will optimize and standardize support services and provide expertise in strategic competence areas to support our businesses.

Country HSE/SA experts will maintain their country responsibilities and ensure fiduciary risks are managed through new Country HSE/SA Boards. The Country HSE/SA Boards will monitor performance, support management of risks and provide assurance that HSE/SA risks are managed in an effective way by local business.

As part of our ambition to transform the HSE/SA organization, work started in 2016 to create and establish a single management system for the function, setting out how we manage HSE/SA at ABB.

Due to launch in 2017, the "ABB Way" is a management system for HSE/SA that will provide a common structure for the management of all HSE/SA risks and create clear expectations of our minimum standards. Implementation of the ABB Way will not only improve governance processes, but will also reduce costs by consolidating more than 300 different management systems into one.

The ABB Way will be coupled with an HSE/SA assurance strategy, tools, processes and programs that will



ensure continual improvement and drive positive change throughout our operations. A Group-wide comprehensive audit and assurance program is in development, designed to engage and include line management and to streamline and drive efficiency. To drive the process, a Group HSE audit and assurance manager was appointed in 2016, Group standard audit protocols are being developed and piloted and the audit team is being recruited during 2017, with full program deployment planned for 2018.

To further support our businesses to track their HSE/sustainability performance throughout the year, we developed a "balanced dashboard" during 2016, for roll out in 2017. The dashboard contains selected indicators for health, safety, environment, security and corporate responsibility, consistent with ABB's Sustainability Objectives. The dashboard will be available quarterly and will be able to show progress at Group level, by division or business unit and by region.

This transformation of ABB's HSE and sustainability governance structures and the development of global, standardized support processes will help to drive the achievement of ABB's vision to be a leading contributor to a more sustainable world.

MATERIAL ISSUES

Refining our priorities

ABB's sustainability vision is that, by 2020 and beyond, we will be recognized as a leading contributor to a more sustainable world through our unique business offering and sustainable business practices.

We have undertaken considerable work in recent years to understand what internal and external stakeholders expect of ABB's sustainability performance and where they consider that we should focus our strategy and improvement goals.

We regularly review and evaluate these material issues to determine if they remain consistent and relevant, and if there are any new and emerging issues we need to address.

In 2010/2011, we conducted the widest-ever sustainability stakeholder survey undertaken by ABB to fundamentally reassess our material issues. We sought input from nearly 600 people, including senior ABB executives and employees from all parts of the business in different countries, as well as from our customers and external stakeholders specialized in key sustainability areas – the environment, climate change, human rights, health and safety, and security.

We also benchmarked key sustainability focus areas of peer companies and mapped regulatory risks and macro trends to help us establish a comprehensive sustainability issues landscape. We then scored the relevance to stakeholders of the key issues that had been identified and mapped ABB's material sustainability-related issues. The resulting materiality matrix shaped the development of our sustainability strategy during 2011.

We undertook further reviews with a smaller selection of stakeholders in 2013 and in 2014 to update our assessment of material aspects and to seek their views on how best to report on our sustainability strategy, performance and progress. These reviews were conducted by a third party who interviewed representatives across our key constituencies: ABB employees, customers, suppliers, investors, civil society, including NGOs, international organizations, sustainability experts and young people. The results from the interviews confirmed the main conclusions from our 2011 consultation and led to better definition of our material issues.

These stakeholder consultations have helped us to develop and further refine our Sustainability Objectives 2014–2020.

External stakeholder panel: Deeper conversations

In order to continue and enrich our stakeholder consultation process, we set up a sustainability report review panel in 2015 to replace the third-party stakeholder interviews. The panel's objective is to challenge the company's approach to sustainable development, review the most material issues and form an opinion on the company's sustainable development performance and reporting.

Panel members represent the key market and non-market stakeholders of the company and were selected for their level of knowledge and skills regarding sustainable development issues relevant to the company. We sought to achieve both geographical and gender balance, as far as was possible. Three of the eight original panel members also participated in stakeholder interviews in previous years.

Meetings with the panel are held virtually and chaired by an external facilitator. The majority of panel members join these calls and those unable to participate are interviewed separately at a later date.

During our meetings regarding the 2015 sustainability report, we received extensive feedback on ABB's Sustainability Objectives, input regarding material issues, as well as commentary on ABB's 2014 sustainability reporting and online sustainability presence.

This feedback regarding material issues and narrative helped us to determine the structure and content of the 2015 report and led to a slightly updated materiality matrix. Panel recommendations regarding longer term issues, such as adjustments to objectives, targets and KPIs helped to guide some of our work during 2016.

The panel's consensus statement was published in the 2015 report and ABB's response to the panel's recommendations, covering activities during 2016, appears [online](#).

Six of our eight original panel members graciously agreed to continue their participation in the panel to review ABB's 2016 sustainability performance and sustainability report. We followed a similar process to 2015, using virtual meetings to provide updates about

ABB’s business, sustainability governance, performance against targets and progress with our various initiatives.

Once again, the panel’s feedback helped to shape our sustainability report and provided input for further development of our programs. The panel’s statement appears later in this report, along with individual comments from the panel members.

For 2016, we have not updated our materiality matrix, as we will soon embark on a comprehensive materiality review to provide a foundation for the development of ABB’s post-2020 sustainability objectives.

Sustainable Development Goals

ABB welcomes the adoption of the UN Sustainable Development Goals (SDGs), believing they provide a framework for tackling a number of core economic, social and environmental challenges in the coming years. ABB’s business focus on utilities, industry, infrastructure and transportation correspond to several of the improvement areas prioritized in the SDGs.

During 2015, we conducted a first analysis to understand where ABB can best support the realization of the SDGs. We reviewed current ABB material issues, programs and

objectives versus SDG underlying objectives and targets, mapped ABB activities to the relevant SDGs and developed a first list of ‘priority’ SDGs, which were reviewed by our stakeholder panel.

“ABB’s approach to the Sustainable Development Goals” was published in the 2015 Sustainability Report, focusing primarily on ABB’s existing activities and contributions.

In 2016, we conducted further internal and external consultation to refine our approach. As a result, we determined that the most material SDGs for ABB are SDG 7 Access to energy for all, SDG 9 Sustainable industrialization, SDG 13 Climate change action and SDG 8 Decent work and economic growth. In this report, we have explicitly linked the ABB sustainability objectives with the relevant SDGs in our Performance against targets dashboard, to demonstrate ABB’s contributions.

However, importantly, our stakeholder panel reminded us during our consultations that it is important to balance consideration of opportunities with the challenges posed by the SDGs. We will incorporate these considerations into our assessment of future work programs and activities from 2017 and beyond.

2016 materiality matrix

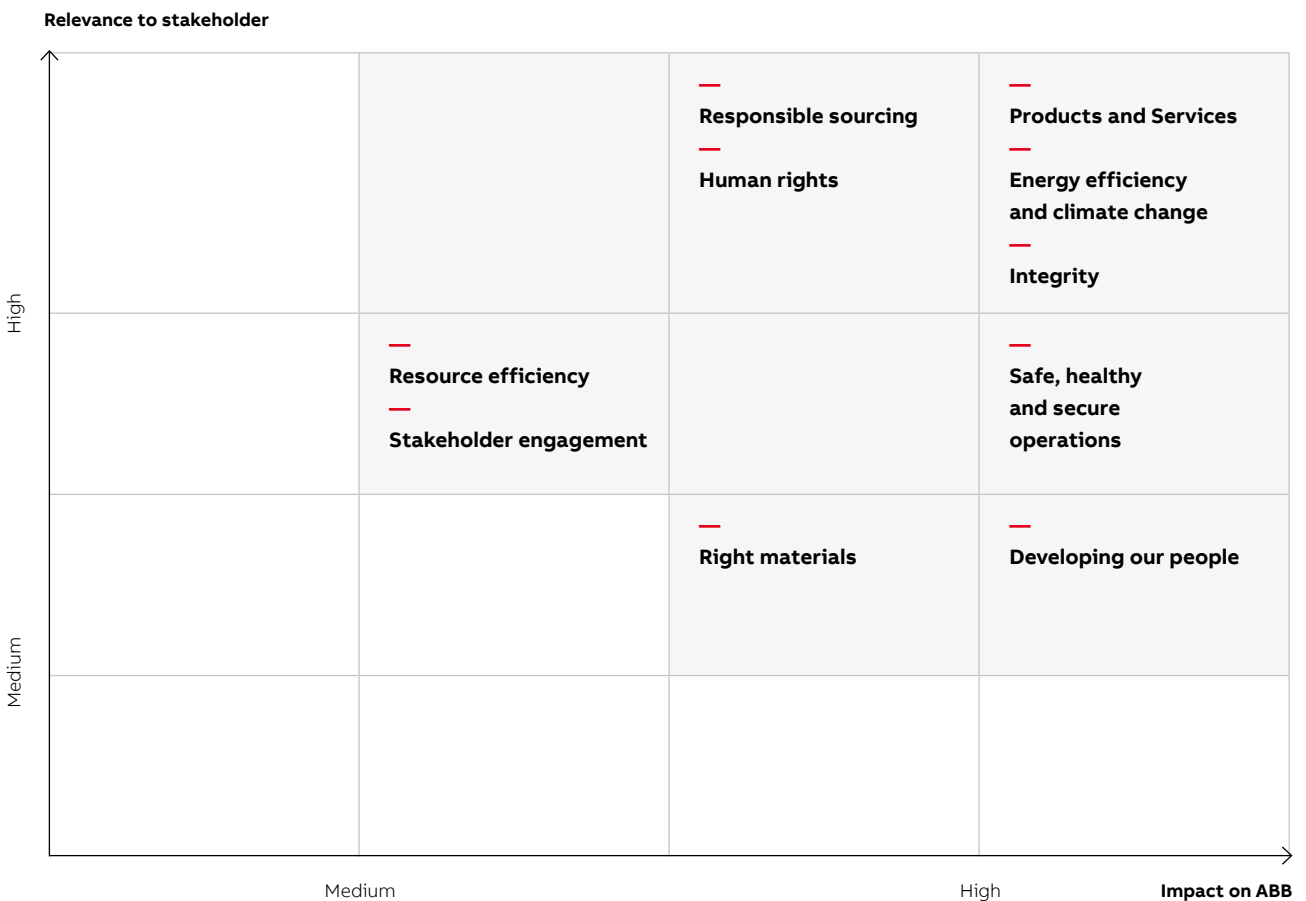
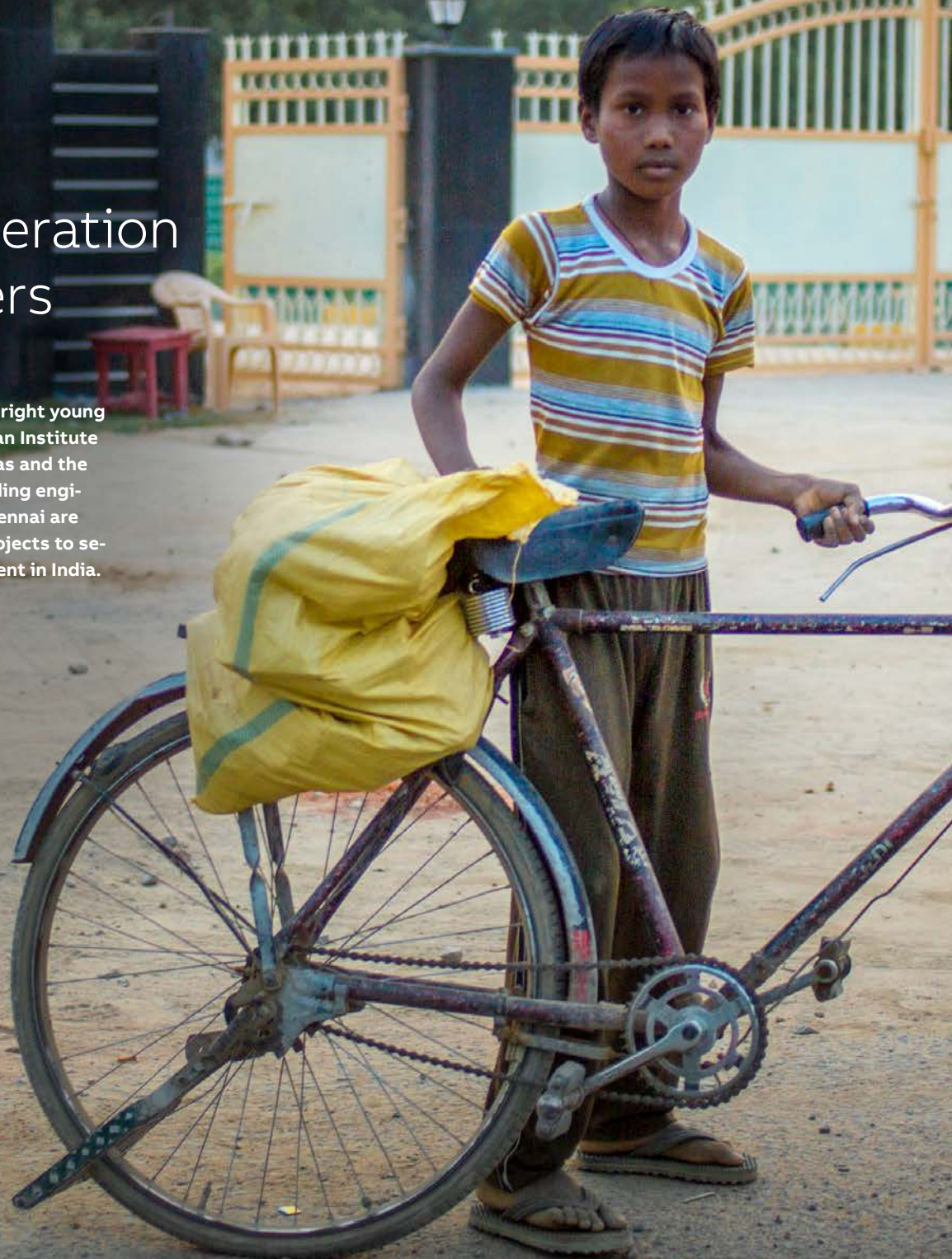


ABB India

A new generation
of engineers

Collaboration with bright young minds from the Indian Institute of Technology Madras and the continuously expanding engineering center in Chennai are just two of ABB's projects to secure engineering talent in India.



02

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OUR PEOPLE

Working together for change

As ABB continued down a path of transformation, 2016 proved to be a vital year in the implementation of the Next Level strategy. Changes across the organization brought not only new opportunities and challenges, but also a stronger commitment to support our people and prepare them for the future.

Taking performance to the Next Level

The White Collar Productivity (WCP) program is one of the company's seven 1,000-day programs aimed at making ABB more efficient, agile and customer focused. Since its launch in 2015, the WCP program has reached significant milestones. The company has taken major steps to achieve market-oriented simplification, notably with the realignment of our businesses from five to four divisions, to improve business functions in order to get closer to customers and to expand the capacity of our support functions to deliver best-in-class services from shared service and knowledge centers.

Our new shared service centers, also known as Global Business Services (GBS), provide support to our businesses in human resources, finance, information systems and supply chain management. Their role is to ensure consistently high levels of service, quality, cost-effectiveness and compliance in handling standardized support services. The six selected locations, in China, Estonia, India, Mexico, Poland and the US, have allowed us to leverage existing resources and, importantly, a pool of highly qualified people. The shift from country-based to globally managed shared service centers has been carefully planned to optimize how we work and widen the talent profile of the company.

In parallel, we established physical and virtual knowledge centers to consolidate and share expertise and specialized services across the organization. These Centers of Expertise (CoE) allow our subject matter experts to provide strategic and tactical guidance, including human resources, finance, supply chain and information systems. While some centers already existed, the new structure capitalizes on our scale and accelerates the more effective sharing of best practices.

The realignment of our businesses and the implementation of the WCP program have prompted changes in our operations and structures, which inevitably have impacts on our people. To assist the transition, our leaders have worked to engage regularly with the employees affected, with local works councils, as well as the European Works Council and with diverse local stakeholders. Despite

sometimes difficult topics, the structured consultation and engagement processes helped to build trust between the parties and to address challenging issues openly and constructively.

The establishment of the global Labor Relations CoE and the introduction of global tools and standards also helped to guide leaders and to create awareness of local labor expectations and requirements on all levels. Use of these resources has led to better decision-making and planning – and, critically, more timely and open communication during a time of uncertainty.

One example of WCP in action

If the WCP program was designed to improve the way we at ABB work – especially with each other – it made sense for the most people-oriented support function to lead by example. During 2016, our human resources (HR) function started on its own transformational journey by implementing WCP and redefining its role and responsibilities. Building on a solid foundation in HR management, the new HR functional blueprint is designed to reduce complexity and increase efficiency, to address the needs of our business better and more quickly.

The Australia HR team became the first in ABB to adopt the new HR blueprint, enabling it to focus more on helping individuals and teams work to the best of their abilities – and in effect, support the business. In June 2016, the newly opened GBS center in Bangalore assumed the delivery of a number of processes key to effective talent recruitment, management and retention. The potential complexity and impact of such a change prompted Australia HR business partners to develop a transition plan rooted in open communication and the engagement of everyone involved. The outcome has been positive, despite the movement of people inside and out of the organization, and can be considered a case study in a sensitive area of change leadership.



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More globally, the results of the HR transition also are promising. Along with the shift of more transactional responsibilities to the GBS centers, the development of Centers of Expertise has also led to improvements in specialist processes, such as talent management. The merging of talent attraction and retention in the Integrated Talent CoE has already helped the company better tap into its own assets and speed up the recruitment process, increasing internal mobility and creating new opportunities for redeployment and training.

We are also monitoring progress of the HR transformation through internal surveys. For the past several years, the HR function has used the 'Net Promoter Score'

implemented across business, functional and regional lines, from the factory floor to the executive committee.

These processes are reinforced by our bonus scorecard that balances company and individual/team objectives. In 2016, all behavior targets were linked to the scorecard, including demonstration of the new ABB competencies and contribution to the "Don't look the other way" campaign on safety and integrity.

In terms of attracting new talent, our status as an employer of choice, in many countries around the world, has been vital to recruitment. To make it easier for interested candidates to apply, we revamped the online application



program to gauge the satisfaction of internal customers. The 2016 survey showed that satisfaction with HR business processes increased, even during a time of transformation. An additional internal "Pulse" survey, administered within the ABB HR community, was designed to gather feedback from those participating in the change and led to improvements in the roll-out process.

Focus on talent

In addition to the WCP implementation, we took significant steps to further attract, develop and retain the people who will best move ABB into the future. We finalized and completed training in our new capability and workforce planning process, which ensures the quality and quantity of people needed to deliver ABB's Next Level strategy. We integrated our new competency model, Values in Action (VIA), in key HR processes, including recruitment, training and annual performance appraisals. Our bottom-up people review process has been

process. A new mobile-enabled candidate user interface now streamlines the flow, from job search to application. We also activated social media application, where possible, through LinkedIn. Within one month, one-tenth of job applications were being sent from mobile devices.

As for developing and retaining talent, we made internal mobility a strategic focus to help our own people grow and move more freely across the organization. We developed a coordinated and action-oriented global approach to identify and remove the barriers to mobility – and become more agile and business-focused in responding to pressing talent needs, especially for senior roles. The increased use of communication, talent profiles and guidelines to clarify the internal process has already made a notable difference.

Other programs and practices to develop our people continued to flourish. Nearly 83,000 annual appraisals

in 84 countries were carried out, providing feedback on performance and discussions on career development. Functional competency development programs, mostly in engineering, management and R&D, were completed in 11 different functions, while a total of 673 long-term assignments were in effect in 2016. Such international mobility strengthens our ability to transfer knowledge and deliver customer value.

Spotlight on learning

In line with our push to provide new opportunities for career growth, we designed a sweeping global learning and development strategy in 2016. The new strategy will be supported by an expanded offer of standardized learning programs for all levels. Proven programs, such as ABB Life for university graduates, senior leader development at IMD business school and global mentorship, have been updated to incorporate the ABB value pairs.

We also identified learning and development gaps and, accordingly, created three new programs for middle and senior management. A new program to promote a more customer-oriented and entrepreneurial culture at ABB is in development.



In line with our global scope and growing focus on internal mobility, we continue to offer free language training to employees in 23 languages, through the interactive Rosetta Stone program. Free English training (also for families) is provided through Education First.

The surge in new and enhanced learning and development programs has necessitated a more efficient learning management solution. A new cloud-based platform, to be launched in 2017, will act as a central resource for all ABB knowledge and learning tools.

A stronger framework for diversity and inclusion

The case for increasing the diversity and inclusiveness of ABB has become more pressing. We are proud of our truly global outlook, with 50 nationalities represented at headquarters; and eight in our 11-strong executive committee. In other areas, such as the number of women in leadership positions, we still have work to do.

To accelerate our progress, we have begun implementing a new diversity and inclusiveness framework to expand opportunities, especially for women already working at ABB. The first phase of implementation focuses on the integration of diversity objectives in current talent development processes, career life-cycle programs and increasing awareness of diversity issues among employees and senior managers.

During 2016, we strengthened recruitment and leadership development processes to reinforce the female talent pipeline at all levels. Actions focused on our people review succession planning process and on expanding talent sources to ensure accomplished women candidates are considered for open positions. We also continued to support and sponsor the Women's Forum as part of our goal to ensure ABB is an employer of choice for women employees and candidates and to share and learn from best practices in other leading businesses.

Additionally, we have heightened ABB's external engagement with other high-level partners to share perspectives about the workplace of tomorrow – especially in the face of increasing digitalization. Prasad Swaminathan, Global Head of Talent, was invited to join the 25-member World Economic Forum's Global Future Council for Work, Education and Gender. Through a multi-stakeholder dialogue, the Council explores themes to address the needs for increased participation of women in the workplace and effective talent strategies, policies and regulations for emerging labor markets.

ABB recently joined the Global Apprenticeship Network as well, to help prepare the next generation for the world of work. As our organization changes, along with the world around us, we are confident that these fresh perspectives will help foster a culture of collaboration and innovation – and drive the company towards a more sustainable, competitive future.

STAKEHOLDER ENGAGEMENT

Listening and learning to improve performance

ABB has undergone a deep and strategic transformation since launching the Next Level strategy in 2014. The five divisions have become four and have been re-shaped, and the company has become leaner, more agile and efficient.

Such a transformation requires careful planning, detailed explanation and trusting relationships with many different stakeholders.

Sustainability performance forms an important basis for dialogue with stakeholders. In recent years, ABB has been making greater efforts to engage formally with different business and societal partners on sustainability issues.

Since 2011 ABB has been surveying stakeholders on environmental and social performance. One of the outcomes has been the creation of an external stakeholder panel of independent sustainability specialists who advise the company on its sustainability objectives and targets, its gaps and the quality of reporting. A [summary](#) of their latest findings is contained in this report.

ABB engages most closely with the following stakeholders:

Customers

Meeting customers is, of course, a daily activity. Their primary sustainability interest is to buy energy and resource efficient products, systems and solutions which will raise the productivity and efficiency of their business while reducing power consumption and cutting emissions.

Customers continue to seek assurances from ABB about its supply chain to ensure what they are buying has been ethically sourced, meets environmental regulatory requirements, and that robust risk assessment processes are in place. Often they also want information about ABB's environmental, health and safety, and social policies as part of purchasing agreements.

To gauge customer satisfaction and help the company to progress, ABB has for the past seven years used a survey called the 'Net Promoter Score' program. The 2016 survey showed that customer satisfaction continues to rise with 50 percent now saying they would recommend ABB to a colleague – a four percent increase over 2015.

ABB also compiles, validates, tracks and analyzes all customer complaints in a single, global system that helps to resolve problems quickly and efficiently. This system – the Customer Complaints Resolution Process – provides valuable pointers for improvement.

Suppliers

As a company with a global supply chain, ABB knows that the conditions under which products are manufactured are crucial both to the workforce and the success of business.

The company is in daily contact with suppliers around the world, seeking high quality, low cost and on-time delivery of products. In addition, ABB has been working hard in recent years to ensure that [suppliers](#) meet its environmental, health and safety, labor and human rights requirements and standards. Much of this ongoing work is carried out through the Supplier Sustainability Development Program which assesses and reviews suppliers' sustainability performance, seeks improvements and trains suppliers as appropriate, and builds internal capacity in the company to recognize risks that need to be addressed.

Investors

ABB has run sustainability roadshows for the past four years in Europe and North America, in addition to individual sessions with fund managers and analysts. In 2016, roadshows were held in Boston, Paris and Stockholm where ABB faced questions, in particular, on its environmental performance and the company's plans to increase revenue from its energy efficiency portfolio.

Mainstream, as well as socially responsible, investors have shown growing interest in recent years in different aspects of ABB's environmental, social and governance (ESG) performance and their impact on the company's business. This is mirrored by increasing interaction with some ratings agencies.



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Employees

The transformation of ABB, and the White Collar Productivity (WCP) program to create a leaner, more efficient company, have raised many questions among employees about their future and possible changes of role and location. Knowing this, ABB management planned the transformation carefully, prioritizing information and communication, and setting out expectations to employees as the program has moved forward.

This has included detailed discussions with the unions – in particular the European Works Council – on different aspects of the WCP program. Apart from regular meetings in Switzerland and Poland in 2016, there was a series of consultations involving senior management and union representatives on the proposed changes, and

Nations agencies and the World Business Council for Sustainable Development.

ABB also works closely with academic institutions in dozens of research and development partnerships around the world. In many countries, such as Brazil, China and India, ABB sponsors educational programs for engineering students. Such partnerships support innovation, and the spread of information and expertise, as well as the company's efforts to be an employer of choice among graduates.

Public policy

ABB is actively involved in policy debate in many parts of the world, particularly the European Union and the United States. ABB's advanced technologies continue



the implications for different locations, countries and business activities.

Civil society

ABB sees itself as part of society, contributing to economic and social progress in different ways. The company engages with representatives of civil society, unions and the media on an ongoing basis, as part of business activities and also to better understand their expectations. The aim is to have meaningful dialogue and collaboration, to explain ABB's positions and policies and, at times, to challenge and disagree.

The dialogue may, for example, relate to a single issue such as a meeting with a non-governmental organization (NGO) in Sweden in 2016 on the condition of migrant workers in the Gulf, or working in the field with partners on rural electrification projects; it also involves taking part in many roundtables, meetings and multi-stakeholder initiatives, such as those organized by NGOs, United

to be of strong interest in discussions related to energy and industrial policy, particularly in view of the ongoing transformation of the energy market and the digitization of industry.

In both the EU and US, ABB has been participating in discussions around grid reliability, energy storage, interconnections, smart grids, energy efficiency, as well as the challenges and opportunities of industrial digitalization.




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Community

ABB has a long history of working in the community, focusing on education and healthcare programs. Sometimes the approach is philanthropic but there may also be other business-related objectives.

Support for universities, technical colleges and other educational institutions, for example, not only improves learning opportunities, but also raises ABB's profile and helps to recruit qualified engineers and other staff. ABB's efforts to improve healthcare are often designed to foster progress in the communities where it operates, and they can also positively impact key local stakeholders such as employees, their families, and suppliers and customers.

In 2016, ABB contributed to about 670 community projects and charities worldwide. Two thirds of them were in North America. A total of 45 countries out of the 69 reporting on their social activities in this report supported community projects. Employees and companies donated approximately \$13 million and provided about 4,500 person-days in volunteering time.

 **\$13 million**
donated by employees
and ABB companies

Major programs are run at Group headquarters while local initiatives are decided at a country level. Some examples of the projects:

Helping disadvantaged athletes

Corporate volunteering is widespread at ABB – in particular in Germany where dozens of employees, from the country Managing Director to factory workers, support participants in the Special Olympics for mentally handicapped people. In 2016, 150 ABB volunteers took part in the summer games, another 100 in the winter event helping athletes to compete.

ABB has been a prime sponsor of the Special Olympics in Germany for the past 15 years, during which 3,000 ABB employees have taken part. ABB volunteers also support Special Olympics events in other countries such as Italy, the United Kingdom and United States.

Innovative technology supporting communities

ABB's advanced technology is helping to support community and humanitarian aid efforts in a number of ways. In the Swiss Alps, for example, ABB deployed a laser-powered control system at a ski resort in 2016 which measures the height of people queuing for a chairlift, and the ground leading to the chairlift is then raised automatically to an appropriate height to allow children and people with disabilities or access problems to get on to the six-seater chair.

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Microgrids, which are a strategic focus area for ABB, support social development by bringing reliable power from both traditional and renewable sources of energy

to remote, off-grid regions. In 2016, ABB agreed to install a microgrid to support humanitarian work at the main Africa logistics hub of the International Committee of the Red Cross in the Kenyan capital, Nairobi. The technology will secure energy supplies – and enable the integration of solar power - at the center which distributes medical and relief supplies to hundreds of thousands of victims of conflict.

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Helping engineering students globally

A global foundation set up to honor a former ABB Chairman and Chief Executive, Jürgen Dormann, is marking its first decade of operations in 2017, helping talented but financially strapped engineering students to pursue their studies. The foundation has grown steadily in recent years, and scholarships are now granted to students at 16 partner universities in 13 countries. In 2016, the latest batch of scholars were invited to Switzerland for a special week of learning – and for many it was the experience of a lifetime.

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Improving healthcare

ABB is involved in a range of projects worldwide related to health. In the United States and Canada, for example, many activities ranging from charity donations through to sponsored fun runs and golf tournaments are designed to support both local and national organizations involved in healthcare.

The scope of support around the world varies considerably. In the United Kingdom, employees have for many years been contributing to Macmillan Nurses who provide cancer care and information to patients and families; in Egypt, ABB provides medical equipment to a hospital, while in other countries such as Argentina, Finland, Romania, Thailand and Vietnam support is geared towards children's hospitals. In Oman, ABB has been helping to raise awareness of heatstroke while in Singapore ABB supports a home help program for elderly people.

Awards

ABB received 14 awards in 2016 in recognition of the company's social, environmental and integrity performance. They included an operational excellence award from China's corporate social responsibility education committee, environmental awards for individual facilities in the United States, recognition of strong health and safety performance in the United Arab Emirates and integrity awards in Brazil and the United States. These awards are valuable recognition of the sustainability work that is being carried out at a country level and serve to strengthen employee commitment.

HUMAN RIGHTS

Moving ahead on human rights

ABB made further advances on integrating human rights into the business in 2016, both as part of ongoing programs to strengthen awareness and best practice, and also in response to regulatory requirements and increasing stakeholder expectations.

Since the adoption of the United Nations Guiding Principles on Business and Human Rights (UNGPs) in 2011, there has been increasing stakeholder pressure on companies to do due diligence on their human rights impacts and risks, and report on performance.

This momentum is reflected in a range of international standards, regulatory changes at a national level to encourage companies to improve performance, and increased civil society monitoring and reporting on the impacts of corporate projects and activities around the world. The focus to date has been on conflict minerals, child labor and human trafficking in the supply chain.

Challenges

One of the key topics for ABB in 2016 was how to recognize and prevent potential human trafficking and modern slavery in its value chain, in response to new legislation and increased international focus on the issue.

Considerable work was undertaken in 2016 across the company, coordinated by Legal and Integrity, Supply Chain Management and Sustainability functions, to ensure a coherent approach to the issue. Policies were updated, among them the Supply Chain Code of Conduct, and the Human Rights and Social Policies; questionnaires covering sourcing and contracted labor were made more robust; training was given to supply chain managers around the world on the issues involved, including how to identify and respond to risks.

This was vital preparatory work in advance of the publication of ABB's first response to the UK act, [published](#) in February 2017.

At ABB, human rights specialists carry out due diligence work to ensure the company understands its risks and avoids causing or contributing to negative human rights impacts. This due diligence – a cornerstone of the UNGPs – ranges from desktop research to the commissioning of specialized third-party reports, and on-the-ground visits. Considerable emphasis is placed on internal risk assessment processes and research into potentially high risk

projects in high risk countries. With ABB interested in or bidding for many projects each year, the level of detailed due diligence depends on available resources.

Another challenge is how to build awareness in the company of human rights issues, and the potential human, legal, financial and reputation consequences of poor performance.

Training and capacity building

ABB has been on its human rights journey for more than 15 years, publishing a formal policy in 2007, carrying out different forms of due diligence, and starting to embed human rights criteria in business processes before the UNGPs took effect in 2011.

Another milestone was achieved when human rights were made part of the Group's Sustainability Objectives 2014-2020. Raising awareness among managers to ensure human rights are understood and well managed is our corporate 2020 objective.

Both of the key performance indicators set for 2016 were reached. One of them - the launch of an international network of human rights advisors at ABB by the start of 2016 – was achieved a year ahead of schedule.



650 managers

trained on human rights principles by end of 2016

The aim of the network is to ensure there are trained employees in different parts of the world who can advise the business on ways of identifying, mitigating and avoiding human rights risks, and who also exchange best practice, as well as dilemmas and challenges. At one meeting in 2016, the issues reviewed included human trafficking legislation, an update on efforts to improve labor and human rights standards in the supply chain, and a report on a corporate initiative to counter sexual discrimination in South Africa.

The other sustainability objective was to train 600 managers on human rights by the end of 2016, following several years of mainly face-to-face sessions in different parts of the world.

The training in 2016 was focused on key target groups who had not received it before, such as the country management team in Germany, and the newly-designated Business Unit Health, Safety and Environment managers who will also be overseeing and advising on human rights and community relations performance in their respective businesses and projects.

In addition, there were also sessions for the country management in South Africa, and members of the ABB sustainability network. By year-end, more than 650 managers had been trained.



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Engaging with different stakeholders

Stakeholder engagement on labor and human rights issues is of vital importance in ensuring strong performance and the social license to operate. ABB speaks to and works with a wide variety of stakeholders, including customers, investors, suppliers, civil society representatives and international organizations to understand their expectations and improve performance.

The areas of engagement are very different: In recent years, customers have increasingly been requiring ABB, as a supplier, to provide details of our labor and human rights policies particularly with reference to the supply chain. ABB has increasingly been working with suppliers not only to assess whether they follow and meet ABB standards, but also to help them improve working conditions.

ABB speaks regularly to investors and ratings agencies about a wide range of sustainability issues. While human rights does not come up as frequently as, for example, environmental performance, they seek re-assurance that ABB is aware of and is managing human rights risks in its value chain. In 2016, issues such as how ABB works to ensure fair working conditions in the supply chain, and to avoid potential child labor issues, were raised.

The company also engages with and learns from human rights specialists. Such activities include peer learning reviews in the Global Business Initiative on Human Rights, lessons drawn from the annual United Nations stakeholder forum in Geneva, and participation in UN Global Compact meetings such as the 2016 summit and local network meetings. The International Labour Organization is also a valuable source of information and occasional advice.

ABB also meets representatives of non-governmental organizations on a formal and informal basis to understand their concerns, and where appropriate, to lay out

ABB's position on a particular issue. Such engagement in 2016 included meetings on a popular initiative in Switzerland covering corporate human rights and environmental impacts, as well as a meeting in Sweden on migrant labor issues in the Gulf.

Access to remedy

ABB has different ways of reporting alleged incidents or negative impacts. They range from an internal process to report allegations of abuses through to hotlines, which are publicly available to internal and external stakeholders worldwide, for reporting suspected violations of the ABB Code of Conduct or applicable laws.

The hotlines are mostly used by current employees. While contact details for all stakeholders are provided on ABB's web site, few external complaints or allegations are registered on them.

Within the company, sustainability specialists around the world, who have received human rights training, carry out formal annual reporting on issues that may have arisen in the value chain. For 2016, no incidents of child or forced labor were reported.

However, as in many large organizations, violations do occur within the company. There were five substantiated cases of harassment in 2016, resulting in four terminations and one resignation.

ABB has also been considering additional ways to address the issue of access to remedy for people whose rights may have been violated, as defined in the third pillar of the UNGPs.

Looking ahead

There is a clear moral imperative, as well as many business reasons, for strengthening human rights due-diligence yet further. We are continuing that journey.

ABB is reviewing its human rights program in 2017 to see where further steps can be taken in order to reach the 2020 objective. While human rights criteria are already embedded in key decision-making processes such as supply chain, the review of project bids, and mergers and acquisitions, there is room for strengthening some of the criteria to be reviewed in project bids. This is an area of focus in 2017.

Training and capacity building are one important way of driving better performance but there are other areas to be worked on to make the approach more coherent across the company and to embed human rights into company culture. This will require more work in different parts of the business and increased employee engagement.

Recognizing the extremely complex nature of human rights, we will continue to emphasize the importance of collaboration and learning from others.

SAFE, HEALTHY AND SECURE OPERATIONS

Focusing on accountability and engagement

We consider the ABB value pair of safety and integrity as the bedrock of our organization, which means that the health and safety of our employees, contractors, customers and others affected by our activities are a top priority for ABB.

Our objective is that by 2020 all ABB operations will have an excellent health, safety and security culture embedded in their day-to-day business, targeting zero incidents.

Many programs and best practices already are in place to help achieve this goal and significant progress has been made, for example achieving a sustained decline in overall employee incident rates. However, we faced a challenging year in 2016 when we recorded a number of fatal contractor and road travel incidents, prompting a close review of how we support safety throughout our global operations.

Top leadership reinforces accountability

The results of this analysis prompted the ABB Executive Committee to launch a new framework to reinforce clear accountability and responsibility for health, safety and environment (HSE) in our operations. Within this HSE accountability framework, we established 'lead organizations' and 'lead managers (HSE)' for every ABB workplace across our organization.

Lead managers (HSE) now chair a local governance process to ensure that there is clear agreement, communication and understanding on responsibilities for managing HSE risks at every ABB workplace and for every shared or common area associated with that location. Consistent with ABB's Next Level strategy, the HSE accountability framework reinforces the clear link between our core values, our behavior and delivering business value.

To further underline this link, all ABB employees are required to include a health and safety behavioral goal in their annual objectives. Additionally, management engagement with safety is incentivized by inclusion of the safety indicator "hazard reporting rate" in the internal ABB performance dashboard, which is factored into all managers' variable compensation.

Other, key CEO-led programs continued to reinforce the Group safety message. The second annual CEO Safety Awards were presented at the Group Leadership Forum in 2016. The awards are open to all ABB employees around the world and acknowledge significant individual and

team achievements that promote a strong safety culture. From more than 130 nominations, winners and runners-up were selected in each of four categories – Safety Leader, Project Safety Performance, Team Safety Improvement and Service Safety Award.



→ Read more at abb.com/sustainability

ABB Safety Week, launched by senior management in 2014 to mobilize ABB teams and contractors around safety, expanded further in 2016. Around 160,000 employees and contractors took part in more than 4,000 activities promoting safe and healthier habits, both at work and at home. Sessions focused on three drivers of ABB safety culture: Safety-related communication, key safety disciplines and the safety observation tour (SOT) process. To expand on the week's communication theme, ABB employees also actively engaged their colleagues in more than 140,000 targeted conversations about health and safety topics important in their local area.



160,000 employees
and contractors took part
in Safety Week 2016

Programs and tools supporting our strategy

During 2016, we also continued to deliver global improvement programs associated with our key risks and the work areas prioritized the previous year: Safety masterclasses for line management, streamlined HSE management system, and a comprehensive HSE audit program.

The safety masterclasses are leadership and HSE competence workshops for line managers, designed to extend their HSE knowledge and leadership skills and to help them apply these leadership practices in their daily work. Designed and piloted during 2015, the program was rolled out to more than 1,600 plant, local business unit (BU) and product group managers in 2016, with a further 200 completing the classes in the first half of 2017. While this

first wave of the program was delivered in cooperation with an external training partner, we will now train our own personnel to deliver the classes, to enable a much broader reach across the organization.

To further promote business alignment on our common HSE goals, to drive efficiency and to provide a common base for our audit program, we are developing a Group HSE/Sustainability management system consistent with international standards. We laid the foundations for the system during 2016, and in 2017 will continue development and conduct pilots with selected BUs.

In 2016 we also launched a program to improve and align the way we provide HSE audit and assurance across the group. The program will focus on key, high impact and high frequency issues across all operations and will provide a comprehensive assessment of the implementation maturity of ABB's HSE/Sustainability management system. A Group HSE audit and assurance manager was appointed in 2016, who is developing Group standard audit protocols and recruiting the audit team during 2017, with full program deployment planned for 2018.

Health and wellbeing: Building resilience

As part of ABB's focus on our people, during 2016 we expanded our employee health program beyond the existing risk management aspects of occupational hygiene, ergonomics, travel health and pandemic preparedness to bring a global focus on wellbeing and resilience.

Initially, we collected good practices across the company to develop Group policies and practices on health. We then established and started to roll out a new ABB health strategy, with the goal to integrate good health practices into the daily life of all our employees, both at work and at home.

All ABB country HSE/sustainability organizations were required to appoint a country wellbeing coordinator and to develop a country wellbeing plan as part of their overall 2017 HSE program. With the introduction of non-smoking policies as a cornerstone, HSE organizations also were required to develop a range of activities to promote topics such as healthy nutrition, fitness, medical checks, health awareness and addiction prevention. In addition, programs to promote physical, psychological and social resilience are in development during 2017, with the initial focus on stress management.

We expect this added focus to bring benefits both for our employees and for ABB, as the wellbeing of the people working for an organization is a determining factor in its long-term effectiveness and productivity.

Our health and safety performance

We saw significant improvement in many of our key safety metrics in 2016, but tragically we recorded five fatal workplace incidents involving contractors at work sites in



China, Egypt, Guinea and India, and one road traffic accident in Peru resulting in the death of two contractors and an ABB employee.

In response, we are reinforcing our efforts at many different levels to ensure safe ways of working with contractors. Supplier qualification and classification processes have been enhanced, contractor management and project safety management are part of our code of practice for safe working and our safety leadership training, and project safety audits and the new governance processes provide assurance that the rules are being followed.

Additionally, we launched a global road safety campaign, including a handbook, videos, and monthly communications activities including articles, blogs and engagement.

In other areas, we are already seeing benefits from our increased focus on safety performance. The employee total recordable incident rate declined by 10 percent from 2015 and has improved by almost 40 percent since 2012, while we have also seen a significant reduction in severity of incidents, as measured by days lost rate. See pages 70 and 71 for full safety performance data.

Good progress has been made towards the 2020 targets for our leading indicators. The safety observation tour rate exceeded the 2020 target of 1.2 per employee, while the rate of hazard reporting was more than double the target rate of two per employee. From 2017, the hazard reporting target for ABB's internal dashboard has been changed to

proportion of hazards resolved, reflecting progress from safety awareness raising to hazard prevention.

Certified health and safety management systems were in place at 408 of 583 reporting locations (70 percent), covering 81 percent of employees. The development and roll out of The ABB Way, our common HSE/Sustainability management system will be completed by 2020, with the aim to ensure all ABB employees and contractors are included within its sphere of control and governance processes.



81% employees

covered by certified health and safety management systems

Secure operations

ABB is committed to conducting secure, ethical and respectful business globally by applying best practice when safeguarding our personnel, including contractors and



other third parties under our legal care, our assets, both tangible and intangible, the resilience of our business and our reputation.

In an increasingly volatile and insecure world, ABB has been placing greater emphasis in recent years on the security of our people and contractors, particularly in high-risk countries or during crises. We have established travel security policies and procedures to protect the security and wellbeing of anybody traveling abroad on behalf of the organization and have established travel risk mitigation measures and tools that allow us to monitor our travelers and provide timely assistance and advice when needed.

During 2016, we implemented a new travel risk management and approval process for ABB international business travelers, to provide a simpler, faster and more automated procedure that helps to ensure all travelers are both registered in our tracking system and provided with appropriate information regarding their destinations. We significantly extended the range of travel risk awareness and preparedness training available for our travelers.

Additionally, training our employees to understand how to act and react under exceptional circumstances is vital to ABB's ability to exercise our duty of care. Crisis task forces have been established at the Group, region, country and local levels and regular and mandatory training sessions are held to ensure that these teams know how to behave in the event of a natural or man-made crisis.

As part of this commitment, the management teams in countries where ABB has operations and major projects receive crisis training every three years. During 2016, ABB's internal corporate security staff led 23 face-to-face crisis training sessions, with a total of 84 sessions run during the period 2014 - 2016. In many cases, training is tailored to perceived threats in a region. In some countries, the threat of kidnap for ransom or extortion are seen as the greatest risk, whereas in other areas, natural catastrophes such as earthquake, fire or flood are perceived as more likely occurrences.

For our facilities and project sites, ABB's physical security program covers a range of measures to minimize the possibility of malicious harm to anybody under the legal care of ABB and to reduce the likelihood of loss of or damage to property, information and/or reputation to as low as reasonably practicable. Standards and guidelines describe the elements that must be included in site security plans for ABB facilities and for project security plans, based on local and site- or project-specific risks.

While it is not advisable to go into detail about security challenges that ABB confronted in 2016, our security management systems and training helped us to safeguard our people, protect our assets and meet our customers' needs – efforts that we know are likely to increase in the future.

RESPONSIBLE SOURCING

Learning from experience

ABB is committed to improving our supply base. Through collaboration with our business partners, we aim to enhance supplier relationships, ensure the highest quality standards and create a sustainable supply chain.

As part of ABB's core values, we strive to set the highest quality standards for our products and services. This is why we view our suppliers as an extension of our global enterprise and an integral part of our company's long-term success. Through collaboration with best-in-class suppliers, we help to ensure supplier compliance with ABB standards and continuous, sustainable improvement, creating value for our customers, for ABB and for our suppliers.

With operations in approximately 100 countries, ABB manufactures products in over 300 product lines and has approximately 60,000 direct material and project service suppliers. We take a structured approach to supplier qualification, performance evaluation, classification and development, with the goal to improve supplier quality, on-time delivery and compliance, while consolidating our supply base and reducing risks.

ABB clearly outlines our expectations of suppliers in the ABB Supplier Code of Conduct (SCoC), which reflects the 10 principles of the UN Global Compact and the content of ABB's Code of Conduct. During 2016, we updated the SCoC to address new legislation on human trafficking and modern slavery in the value chain and provided training to supply chain managers around the world on the issues involved, including how to identify and respond to risks.

Supply base management driving improvement

Our process to register and pre-qualify new suppliers is operated through our partner Achilles. The centralized, online supplier registration and prequalification system means up-to-date, accurate and validated information is available to all our purchasing specialists around the world.

Supplier qualification, performance evaluation and classification processes are conducted in-house, according to standard, global processes. These processes are mandatory for all suppliers of direct materials or project services where annual ABB spend is above \$5,000.

An initial company risk evaluation, covering sustainability, compliance, quality, supply chain and financial risks, determines the required steps in the qualification process; a higher risk rating leads to more stringent qualification steps. All suppliers must be certified according to ISO 9001

or a similar quality management standard and suppliers of materials or services classified as high HSE risk are strongly recommended to be certified to ISO 14001 and OHSAS 18001 for environmental and health and safety management.

The supplier classification process takes into account the supplier's qualification status, compliance status, actual performance and overall strategic fit. ABB can clearly identify the suppliers best aligned to our sourcing strategies and standards, and channel spend to those classified as 'Preferred' and 'Approved.'

ABB's supplier performance evaluation covers external suppliers of direct material and project services, as well as internal suppliers of direct materials and transport and logistics suppliers. The process is required annually for at least 60 percent of spend in each local business unit. The results of evaluations drive supplier development processes and are important input to supply base consolidation efforts.



3,500+

critical suppliers trained since 2011

As part of our continuous improvement efforts and to reinforce ABB's health and safety requirements of project contractors, in 2016 we rolled out a new, global construction contractors qualification process (CCQP). By applying the CCQP to assess contractors' health and safety practices and performance, previous project experience, capabilities, equipment, tools and personnel, we help to secure the quality, safety and compliance of our projects and also enable classification and sharing of our best contractors across ABB's businesses. The process is now implemented for both new and existing contractors in all types of field construction services.

Promoting material compliance

ABB's suppliers also play a significant role in helping to ensure that hazardous, prohibited and restricted materials are controlled along our supply chain. To make sure that

the materials and components we use and the products we produce comply with our own and our stakeholders’ standards, ABB has compiled a list of prohibited and restricted substances, referencing international regulations. Our suppliers are required to comply with this list and we have produced a guide and training materials to support suppliers’ understanding of their obligations.

Our suppliers are also key partners in identifying and preventing “conflict minerals” entering ABB’s supply chain. ABB, along with many other companies, is required to report to the United States Securities and Exchange Commission (SEC) on the extent to which we use what are known as “conflict minerals”, principally gold, tin, tungsten and tantalum (3TG), mined in the Democratic Republic of Congo or an adjoining country. Under the Dodd-Frank Act, companies must report annually to the SEC to describe our ongoing efforts to determine the origin of the 3TG minerals used in ABB products. In 2016, we provided our [third report](#), covering 2015 activities.

During that reporting year our engineering and R&D teams identified the products and components likely to contain 3TG minerals for a large part of our impacted product portfolio and supply chain management linked these to the relevant suppliers. Each year, ABB requests thousands of suppliers to provide information on the use of conflict minerals in the products supplied to ABB and in this reporting year, the response rate improved significantly to 72 percent. In addition, ABB provided conflict minerals training to around 3,800 suppliers and to around 3,000 ABB employees in engineering, R&D, sales and supply chain management. So far, 379 smelters and refiners of 3TG used by our extended supply chain have been identified and reported.

ABB has also increased our participation in the Conflict-Free Sourcing Initiative and provided assistance to increase the number of identified smelters and refiners participating in the Conflict-Free Smelter Program.

For a second year running, ABB has been recognized for responsible sourcing of minerals. Two independent benchmark studies, conducted by Development International and Responsible Sourcing Network, assessed and ranked the performance of companies working to prevent conflict minerals entering their supply chains.

 → [Read more at abb.com/sustainability](http://abb.com/sustainability)

Developing supplier sustainability performance
 ABB’s Supplier Sustainability Development Program (SSDP) focuses our efforts to ensure compliance with the ABB Supplier Code of Conduct and to support continual improvement in the sustainability performance of our suppliers. The program is structured around a combination of training for both suppliers and ABB employees, on-site assessments and monitoring of performance improvement plans.



980+ in-depth supplier sustainability assessments conducted since 2010

We prioritize suppliers to participate in the program according to a risk matrix, which includes the criticality of the supplier, country risk, commodity risk based on operations characteristics, and spend volume. The selected suppliers receive training about ABB’s global requirements regarding sustainability standards and on practical ways to improve their performance. We then conduct sustainability assessments at the premises of selected suppliers to identify remaining gaps, and help them to develop improvement plans, which are monitored to ensure timely completion. We focus on tier one suppliers in priority countries, which included Argentina, Brazil, China, Colombia, India, Indonesia, Malaysia, Mexico, Peru, Poland, South Africa, Thailand, Turkey and Vietnam by the end of 2016.

Supplier Sustainability Development Program ^a	2016	2010 - 2016
Number of ABB employees trained	377	2,011
Number of suppliers trained ^b	326	3,549
Number of suppliers assessed ^b	226	984
Number of risks identified ^c	839	3,162
Number of risks mitigated ^d	693	2,178

^a In 2016, the reporting template was updated for consistency with organizational changes and for consistent calculation of total risk.
^b Historical data for number of suppliers trained and number of suppliers assessed has been corrected, following internal review.
^c Number of risks identified = (number of initial extremely high risk*5) + (number of initial high risk*3) + (number of initial medium risk*1)
^d Number of risks mitigated= number of risks identified during initial assessment – number of current risks open

Focusing on continuous improvement
 To support suppliers on their journey and to better focus our development activities on the relevant supplier needs, ABB periodically reviews the gaps identified during supplier assessments and identifies the most common non-compliances. During 2016, we repeated this review, covering more than 80 percent of the suppliers assessed during 2014-2016. The analysis was performed both at global and at regional level and identified supplier inability to conduct health and safety risk assessments and environment risk assessments as the root cause of several, common non-compliances. ABB regional teams then used these conclusions to reinforce their supplier training programs.

During the year we also revisited our overall training approach. Instead of conventional classroom and discussion based training, we deployed a more problem oriented, application based approach. A pilot for this was launched in India, where we conducted three workshops at manufacturing locations in Bangalore, Vadodara and Nashik. The workshop participants worked as teams to address selected problems and later presented their conclusions in plenary for discussion and peer review. In order to reach

out to even more suppliers, we introduced e-learning programs covering the issues of ethics and integrity, and health and safety. The e-learning programs are based on practical situations that might arise during the course of suppliers' operations, and could lead to compromised integrity of the business or safety of its workers.

Top ten sustainability non-compliance issues

General management	<ul style="list-style-type: none"> • Procedures not in place to evaluate and select sub-suppliers and sub-contractors based on their ability to meet ABB sustainability requirements
Labor and human rights	<ul style="list-style-type: none"> • Excessive working hours and overtime
Health and safety	<ul style="list-style-type: none"> • Unsafe / unhealthy working conditions • Inadequate first aid and firefighting equipment • Lack of health and safety risk assessment • Insufficient emergency preparedness, e.g. fire, evacuation, first aid
Environment	<ul style="list-style-type: none"> • Non-compliance with relevant environmental regulations/ parameters • Improper waste management process • Lack of environmental risk assessment • Lack of competence, training and continual improvement

To further support the implementation of robust health and safety practices, we made ABB's Code of Practice for Safe Working freely available to our suppliers. The document details safety risks involved in various industrial activities and outlines appropriate mitigation actions. The content is also demonstrated in e-learning modules.

Internal training efforts during 2016 included a series of 10 live webinars covering the concept of responsible sourcing and ABB's supplier development initiatives. The facilitated discussions that followed these training sessions provided further input regarding common 'gaps' or non-compliances identified among suppliers, which then fed into local prioritization of supplier support activities.

Creating value for suppliers

Although there is no doubt that developing sustainable manufacturing practices brings benefits for suppliers, such as productivity improvement, reduced overheads and improved regulatory evaluations, the benefits achieved are not always easy to quantify. This can fuel a misconception that working in a responsible and compliant manner leads to higher costs, which can lead to skepticism and limit suppliers' interest in SSDP participation.

In order to address these concerns and provide fact-based business cases for suppliers, ABB has collated a number of



case studies outlining the value created for suppliers following participation in the SSDP. Some of the past cases have shown instances of over 30 percent improvement in productivity, along with dramatically reduced working hours and increased organizational maturity.

For example, early assessment of our supplier, Unique Punch System Pvt. Ltd in India, identified improvement potential in several areas, including safety and environmental parameters and risk assessments. Initial hesitation from the supplier's end was overcome by intensive engagement by the ABB supply chain management team, leading to successful implementation of risk assessment over the course of a year. This resulted in safer operations, proper waste management, increased understanding of statutory requirements, better relations with customers and readiness to enter new markets.

→ [Read more at abb.com/sustainability](http://abb.com/sustainability)

Moving forward in 2017

The supplier sustainability development program will continue to grow, expanding into three new countries, Bulgaria, Saudi Arabia and United Arab Emirates, in 2017. In preparation, the local supply chain teams were on boarded and localization of global ABB supplier sustainability requirements was completed during 2016, ready for program kick off early in 2017.

We will also continue our initiative to quantify and document the cases of benefits achieved from implementing sustainable manufacturing practices. Initiatives will be launched in India and Turkey, where we have identified the need for additional supplier engagement.



ABB Tissot-Arena

Solar world record in Biel

The largest solar power plant integrated into a multi-functional sport stadium globally. Supplying clean energy that covers, on average, the consumption of 500 Swiss households.

03

Environment

52 – 54

Energy efficiency, renewable energy and climate

55 – 57

Resource efficiency

ENERGY EFFICIENCY, RENEWABLE ENERGY AND CLIMATE

Working to reduce climate impacts

Just as we target energy and resource efficiency and mitigation of climate change for our customers, through ABB’s product and solution portfolio, we have also been working for many years to manage and reduce the impacts of our own operations.

As part of our Group-wide sustainability objective to progressively increase the efficiency of our own operations, we have set ourselves the target to reduce the energy intensity of our business by 20 percent by 2020 from a 2013 baseline. This includes both direct fuel consumption and the use of electricity and district heating for manufacturing processes and to operate buildings. We also aim to cut greenhouse gas (GHG) emissions by reducing direct fuel consumption, converting to lower carbon sources of energy and improved handling of sulfur hexafluoride gas (SF₆).

To implement the objective, all sites were required to establish an energy savings program and to undertake actions to reduce GHG emissions. By the end of 2016, country energy savings plans were in place for 40 countries, covering 99 percent of ABB energy use, and more than 280 energy savings projects were under way at ABB sites.



9%
reduction in energy consumption since 2013

These focused activities have brought results, with absolute reductions in both energy consumption and GHG emissions realized between 2013 and 2016. However, due to lower revenues and capacity utilization, ABB’s energy intensity, measured as MWh per million US dollar sales, was 13 percent higher in 2016 than the 2013 baseline.

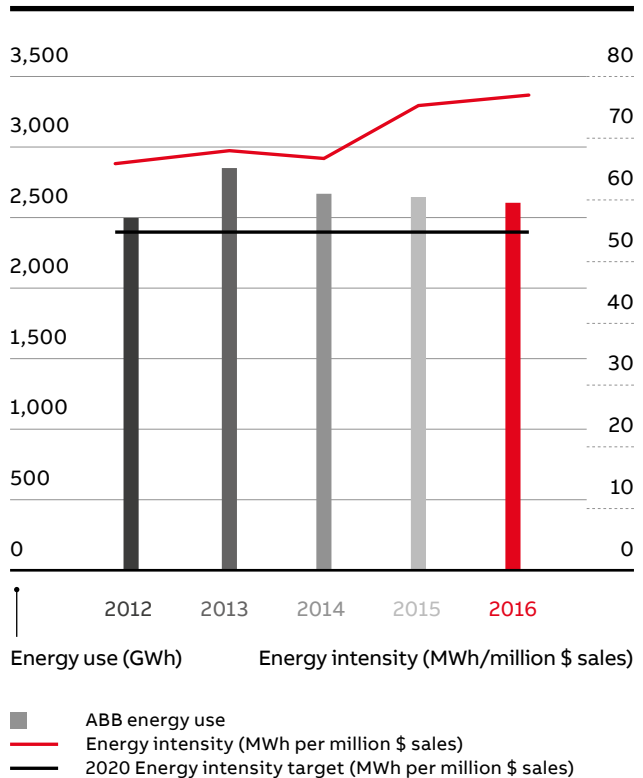
Energy efficiency in our operations

A wide variety of energy savings projects were implemented across the company to achieve the reductions observed in 2016. Most commonly, and cost effectively, facilities implemented energy-efficient lighting solutions. Other activities included optimizing heating, ventilation and cooling processes, investments in more efficient equipment, investigating and optimizing compressed air systems, behavioral change programs, and implementing or updating heat recuperation from machines and processes, often using our own technology.

ABB in Switzerland continued its program of lighting system upgrades, with projects completed at facilities

in Altstetten, Baden and Untersiggenthal during 2016. Energy-efficient LED lights were installed along with ABB’s KNX control systems with daylight sensors and dimming/motion detectors, resulting in better quality illumination of workspaces and significant energy and cost reductions. The company expects an annual energy saving of 1,600 MWh from these three facilities alone. In total, more than 120 lighting replacement projects were undertaken across ABB in 2016, with expected annual energy savings of more than 8,500 MWh.

Total energy use and energy intensity



A number of sites reviewed their compressed air systems, including Rogersville in the US, where actions to address the findings of an air leak survey are expected to save up to two percent – over 450 MWh – of the site’s annual energy consumption. The Kecskemet facility in Hungary installed new, more energy-efficient compressors and now

also uses the waste heat generated by the equipment to produce hot water, saving 120 MWh.

Other, novel approaches to heating and cooling are also providing promising results. At the Nowa Wies Leborska site in Poland, analysis of heating needs resulted in the replacement of natural gas heating with floor heating film, bringing savings of more than nine percent of the site's total energy consumption. The Oiartzun site in Spain installed a system to extract and redirect waste heat from one part of the factory to the employees' locker rooms, enabling deactivation of the original heaters. While in Bulgaria, installation of efficient groundwater pumps and heat exchangers connected to the plant's cooling system has provided highly energy efficient additional cooling capacity needed to cover the plant's requirements and to create a better working environment.

Many facilities have also chosen to implement formal energy management systems (EnMS), with 48 of the 99 sites with an EnMS now externally certified to ISO 50001 or EN 16247. ABB in Spain has implemented a unified EnMS for six main manufacturing and service sites, representing more than 95 percent of ABB's total energy consumption in the country, and achieved certification in early 2015. Each site works towards annual targets based on its unique circumstances and, through these efforts, ABB in Spain reached its 2020 goal to achieve a 20 percent reduction in country-wide energy intensity by the end of 2016.

Driving efficiency in our real estate portfolio

ABB's corporate real estate management also plays a key role in our energy efficiency performance. The ABB Green Building Policy guides the acquisition, development, refurbishment and management activities related to our worldwide portfolio of about 8.4 million square meters of building space. The policy covers both owned and rented space and sets out detailed criteria, including site selection, building design, and choice of materials to optimize resources. Implementation of the policy is helping ABB to achieve our goals for improved environmental performance, financial savings and greater employee satisfaction.

To supplement site by site improvement projects, in 2013 ABB real estate management kicked off a significant project to introduce systematic real estate energy efficiency programs across Europe. Energy monitoring, technical assessments and evaluation of efficiency measures were completed at more than 70 sites across 13 European countries by the end of 2016. Sites in two further countries were expected to complete their projects by early 2017.

More than 600 energy efficiency measures were identified in the course of the projects, along with three key, recurrent themes: lighting, distribution grids and compressed air. To help structure and expedite relevant energy efficiency improvement activities, we created guidelines for our real estate network and compiled useful information around these common issues.

Beyond Europe, the energy efficiency project was expanded to Canada, the US and China in 2016, with activities in India and Brazil scheduled to start in 2017.



→ Read more at
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Reducing carbon intensity of energy

As part of our goal to cut both direct and indirect GHG emissions, ABB seeks to reduce the carbon intensity of our energy sources. Several ABB countries – Belgium, France, Italy and the Netherlands – now purchase all of their electricity from renewable sources. Thomas & Betts plants in these countries will also join these programs as their current contracts reach expiration. In Sweden, almost 20 percent of electricity purchased was “green” energy, while globally, 130 GWh, or almost 8 percent of ABB's 2016 electricity was purchased as certified “green” electricity.



11% reduction

in GHG emissions

(Scope 1 + 2) since 2013

Increasing numbers of ABB facilities are also installing on-site photovoltaic (PV) power plants to reduce environmental impact and demonstrate ABB's solar capabilities. PV plants are now installed at 33 sites in 22 countries across Asia-Pacific, Europe and Latin America. While contributing only a small proportion of our global electricity needs, these plants are often a key part of local energy strategies to replace diesel generation with low carbon reliable power.

Extending this concept, ABB installed an integrated solar PV-diesel-battery microgrid at our Longmeadow facility in Johannesburg, South Africa in 2016. The microgrid integrates multiple energy sources and battery-based stabilization technology within a smart control system, supplying reliable power 24/7 while also optimizing the site's use of solar energy sources. In late 2016, ABB also announced that we will install a fully integrated microgrid at our Vadodara facility in Gujarat, India to help boost renewable energy generation while reducing dependency on fossil fuel.



→ Read more at
abb.com/sustainability

Cutting greenhouse gas emissions

ABB's total GHG emissions (Scope 1 + 2) decreased by 7 percent in 2016 to 1.38 million tons, with an overall 11 percent reduction since 2013. Around 70 percent of the saving in 2016 was due to an overall reduction in the carbon intensity of electricity supply. That is, CO₂ emissions from electricity consumption were 10 percent lower in 2016 than 2015, even though electricity consumption remained essentially unchanged year on year.



The remainder of the savings were due to decreased gas consumption and a reduction in SF₆ emissions from production processes and gas handling on site. During 2016, a number of facilities redesigned certain production processes to reduce and, where possible, eliminate SF₆ use. For example, one of our US facilities eliminated the use of SF₆ in its die casting process, reducing emissions by more than 4,500 t CO_{2e}. Other facilities took measures to improve handling, leak detection and storage procedures for the gas. See the “Approach to reporting” section of this report for details of our GHG calculation methodology.

Transport, logistics and packaging

Implementation of ABB’s global fleet management tool and processes progressed during 2016. Fleet procurement and management processes were harmonized across Europe and will be rolled out in the Americas and Asia in 2017. Baseline, global fleet data were assembled and uploaded to our fleet management tool during the year, with actual fuel and mileage data entry to follow during 2017. The tool will enable tracking of fleet efficiencies and sharing of good practices across our businesses.

Mobility initiatives were also undertaken in a number of locations during 2016. ABB in Canada implemented a pilot GPS service vehicle monitoring program at six of its sites, allowing identification of the closest service vehicle to reduce distance traveled, plus other efficiencies, expected to reduce fuel consumption by 15 percent. In time, this program will be extended to all ABB vehicles in North America. Driver training programs were implemented by a number of businesses to improve both safety and fuel efficiency, while ABB Benelux received a Lean & Green Personal Mobility Award for their actions to reduce CO₂ emissions from transport. Initiatives included greening the company car fleet, driver training and providing a pool of electric vehicles for use by employees.

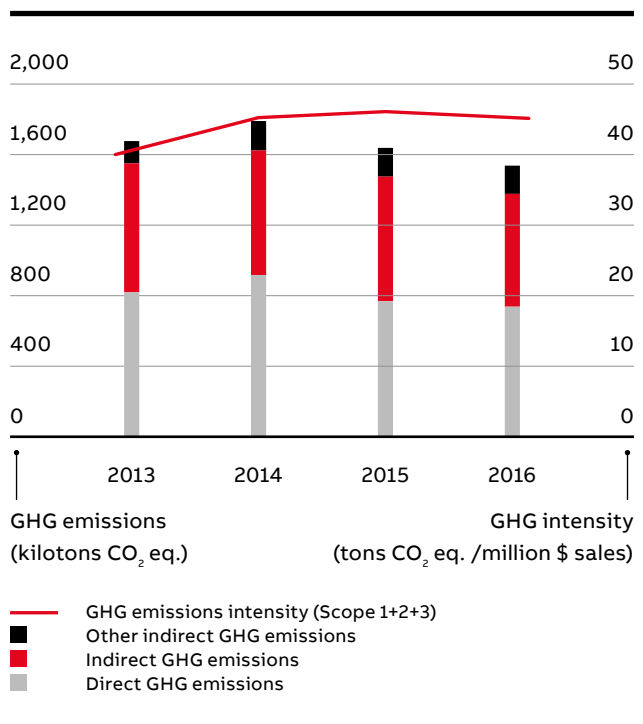
ABB is also significantly expanding its program to optimize logistics operations, with the introduction of ten Transportation Management Centers (TMCs) to serve all ABB businesses globally.

A successful TMC pilot in China consolidated the transport, trade and logistics processes of 36 factories into one TMC location in Shanghai. The new set up, covering all ABB businesses in China, led to significant improvements in all key performance indicators, achieving over 98 percent on-time delivery (OTD) and 99.9 percent damage-free shipments, along with significant reductions in cost and transport-related CO₂ emissions.

As a further step, we have invested in a cutting-edge transportation management system (TMS), which suggests route- and load-optimized shipment plans. It will be deployed across all TMCs as they are rolled out. With this tool, ABB’s supply chain management is digitalizing the planning and execution of the physical movement of goods, enabling real-time monitoring and reductions in cost, lead time and inventories.

In 2016, the TMC in Bangalore, India was the second global center to go live, covering domestic freight for 39 local plants. During 2017, the remaining eight Transport Management Centers will be rolled out, enabling more efficient management of millions of shipments worldwide. TMCs will play an active part in making ABB a stronger, more agile and productive company, helping us to increase customer satisfaction while reducing both costs and environmental impacts.

Total greenhouse gas (GHG) emissions and GHG intensity



RESOURCE EFFICIENCY

Reducing both costs and environmental impacts

ABB is committed to optimize the use of resources, minimize waste and ensure that the materials and components we use and the products we produce comply with our own and our stakeholders’ standards.

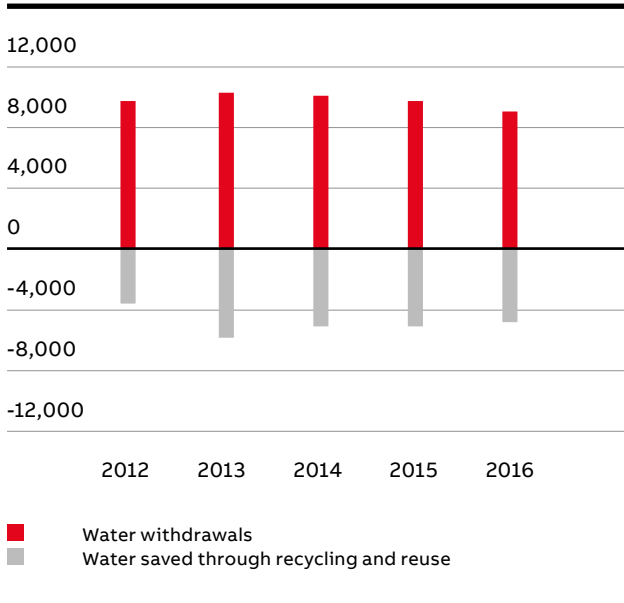
Water in our global operations

Although the majority of our manufacturing processes do not consume significant amounts of water, ABB is nonetheless committed to reducing our impact on water resources.

Across ABB Group, water withdrawals were reduced by six percent (570 kilotons or 570,000 m³) during 2016. This was achieved with a variety of water efficiency projects that included improved monitoring of water flows, up-graded processes for increased recycling or reuse of water, repair and refurbishment of water systems and water conservation training and awareness-raising programs.

The use of closed-loop systems for process water and the reuse of water in other ways, such as in gardening, saved approximately 4,800 kilotons (4.8 million m³) of water in 2016. Without this recycling and reuse, ABB’s water withdrawals would have been 52 percent higher. In addition, the use of closed-loop systems for cooling water eliminated more than 5,800 kilotons in water withdrawals.

Water withdrawals and water reused / recycled (kilotons)



Almost 50 percent of ABB’s total water withdrawals were used for cooling processes, 20 percent for manufacturing processes and the remainder for domestic purposes such as sanitation, cooking or garden maintenance.

Reducing impact where it’s most needed

In order to focus savings where water stress is felt most acutely, ABB is committed to reduce absolute water withdrawals by 25 percent between 2013 and 2020 at facilities in watersheds with extremely high, high, and medium to high baseline water stress.

We have mapped our facilities using the World Business Council for Sustainable Development’s [Global Water Tool](#) and have classified them according to the level of “baseline water stress” of the watershed where they are located. Higher stress values indicate more competition among users within the watershed.

15%
decrease in water withdrawals in water stressed areas in 2016

Of the 581 ABB locations mapped in 2016, 81 are located in watersheds with extremely high water stress, 116 in areas with high stress and 90 in areas with medium to high stress. Even though approximately 50 percent of our facilities and offices and our employees are located in these high water stress areas, these facilities accounted for only 30 percent of ABB’s global water withdrawal in 2016.

We have selected 64 of these sites, located in 23 countries, as the initial focus of our 2020 water reduction commitment. In 2016, these 64 facilities accounted for 72 percent of ABB’s water withdrawal in extremely high, high and medium to high stress watersheds.

To support these locations in their water reduction efforts, we updated and simplified our ABB Water Tool for mapping and analysis of water flows and retrained our

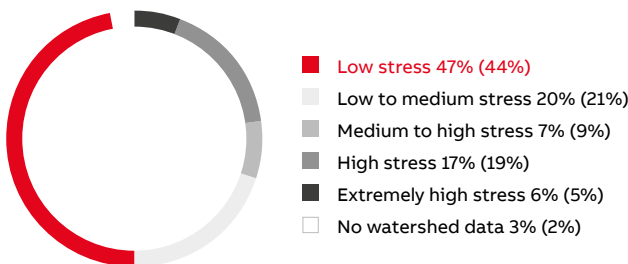
environmental network in its use. Case studies of good practices provided inspiration for further activities.

Many of the selected facilities have initiated activities to reduce their water withdrawals and improve their water efficiency. Some have made significant investments in new processes to reduce water consumption, while others have redesigned systems to transport, treat, recycle and reuse water.

 → [Read more at abb.com/sustainability](http://abb.com/sustainability)

These investments and process changes have brought results. By the end of 2016, the 64 selected sites had already recorded an overall 25 percent reduction in water withdrawals compared with their 2013 baseline. For all ABB sites in these stressed watersheds, total water withdrawals in 2016 were 18 percent lower than the 2013 baseline – well on the way to achieving our 2020 reduction target.

Water withdrawal per water stress area in 2016 (2015)



Waste and recycling

ABB products contain mostly steel, copper, aluminum, oil and plastics. Consequently, the main waste streams at ABB facilities are metal, oil and plastic, as well as wood and cardboard from packaging materials and paper from office activities.



16%
reduction in waste
generated since 2013

We aim to optimize material use, reduce the amount of waste generated and increase the share of waste that is reused or recycled. We are committed to reduce the amount of waste sent to final disposal – both hazardous and non-hazardous – by 20 percent by 2020. This is measured as the proportion of total waste that is sent for final disposal and compared with a 2013 baseline.

In 2016 we saw good progress to that objective, with 16 percent less waste generated than in 2013, while the proportion of waste sent to final disposal was down to 18 percent compared to 20 percent in 2013. In-house recycling and reuse, mainly of packaging materials and thermoplastics, reduced the amount of waste by 3,500 tons.

This improvement in performance was supported in 2016 by a Group-wide systematic analysis of existing waste practices that resulted in the roll out of an ABB guideline on good practice in material flows and resource efficiency. The guideline, specific to ABB’s business operations, was designed to reinforce action to reduce use of raw materials in processes and to increase recycling and reuse of waste.

 → [Read more at abb.com/sustainability](http://abb.com/sustainability)

Around 80 recycling or waste reduction projects were under way in 2016, half of which focused on improved recycling practices. A number of these programs included a detailed waste analysis to ensure improvement activities were well-targeted. In Canada, employees at seven locations even undertook ‘dumpster dives’ to conduct mini waste audits and examine how much recyclable material was being disposed. Site level improvement targets and programs were then developed to address issues identified at each of the sites.

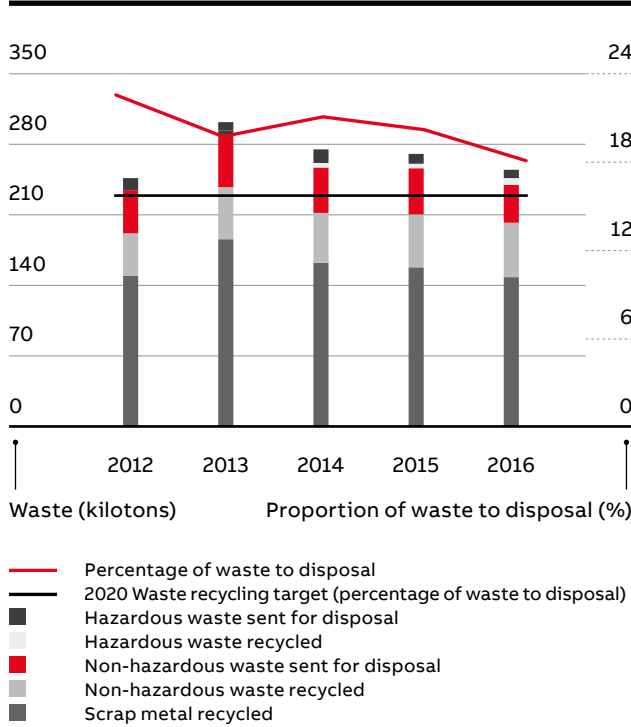
Many other sites focused on replacement of disposable products such as plastic and Styrofoam containers and paper towels with more sustainable alternatives and on better separation of food waste for composting.

Several facilities, for example in Mexico and South Africa, have gone further and engaged permanent employees from their recycling vendor companies to ensure appropriate sorting and waste management on site. Others have invested in equipment such as cardboard balers and shredders or a magnetic labeling system. These investments have been worthwhile, resulting in significant savings from less waste to landfill, reduced hazardous waste treatment and disposal from better waste classification, and improved rebates from better quality recycled materials.

As part of their continuous improvement programs, our operations also review production processes to identify cost savings from process efficiencies and input optimization. Inevitably, these improvements result in decreased environmental impacts as well, often due to reduction of waste.

For example, a project at our manufacturing plant at Santa Palomba, Italy made significant cost savings by reusing plastic material left over from the molding process, reducing waste to zero, without compromising the quality of products. Prior to the project, about 15 per-

Waste and recycling



cent of plastic material was wasted across the plant, ranging from two to 57 percent depending on product line. A multi-disciplinary team developed a pilot program focused on one product line and saved 17 percent of the previously-wasted material with no impact on product quality. This achievement earned the team a bronze CEO Excellence Award in 2016 and the program is now being expanded to further product lines at the plant.

Another process optimization project at an ABB plant in Sweden aimed to reduce scrap in filament winding by minimizing variation along the entire process chain. The project realized cost savings of 30 times the project investment and also reduced waste by 130 tonnes, 60 percent greater than originally forecast.

Reducing hazardous substances

ABB continues to phase out hazardous substances in products and processes, where technically and economically feasible. We have compiled lists of prohibited and restricted substances to guide this process and update them regularly, in line with international regulations. These lists help our facilities to comply with regulatory requirements, ensure a high level of protection for human health and the environment, and manage risks encountered by chemicals present in various products.

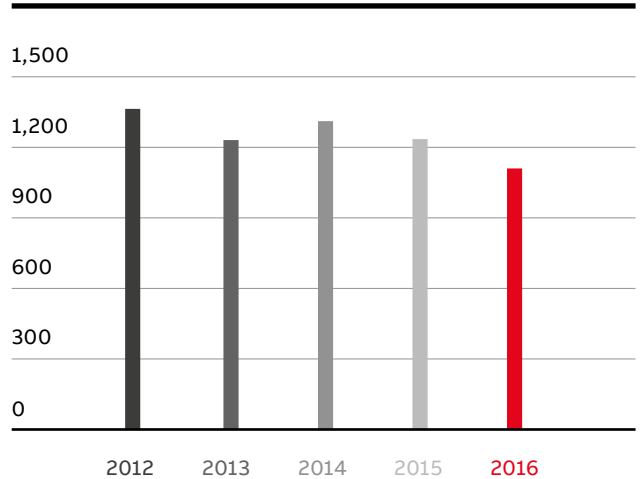
Regulatory compliance is also part of ABB's Global Terms and Conditions for suppliers and our Supplier Code of Conduct. We have developed a [Guide for Suppliers to the ABB List of Prohibited and Restricted Substances](#) to support suppliers' understanding of their obligations.

As well as ensuring compliance with the list of prohibited and restricted substances, ABB facilities are required to work to phase out hazardous substances in their in-processes and products. In 2016, more than 40 projects were under way to reduce hazardous substances and volatile organic compounds (VOC) emissions.

As facilities continue to phase-out the use of solvent-based paints and other products, we saw a 10 percent reduction in VOC emissions during 2016. Much of this success has come via collaborative efforts with suppliers, raising awareness about our needs and the opportunities for substitution.

Due to the variety of manufacturing processes and products across ABB, reducing hazardous substances is generally implemented site by site, depending on site and product characteristics and supply chain. However, ABB in Sweden is taking a systematic, country-wide approach, in a phased, multi-year process. All substances have been identified and ranked on priority for substitution, according to advice from government chemicals agencies. Progress is tracked at quarterly country management meetings to ensure that hazardous substances are phased out according to the agreed schedule.

Emissions of total volatile organic compounds (tons)



Promoting material compliance

ABB's network of environmental specialists works alongside our product development and supply chain function to promote material compliance. During 2016, we developed further training on the application of REACH and RoHS to ABB products and processes and delivered that training to our environment and R&D staff as well as other functions, including supply chain and sales.

ABB Airport Cochin

A solar giant

The world's first fully solar powered airport is just one amongst ABB's landmark solar inverter projects.



04

Performance summary

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ABB Report Review Panel statement

Introduction

ABB has a long history of stakeholder engagement. The company has conducted a variety of stakeholder dialogues and regularly consults a wide range of stakeholders to challenge strategy, and to review material issues and its sustainability performance reports.

In 2015, ABB launched a Report Review Panel (panel), to advance the company's role as a leading contributor to sustainability in the utility, industry and transport of infrastructure sectors.

The panel is designed to provide ABB with an external forum for discussion on its sustainability approach; provide material feedback on progress being made; identify ways to help achieve its 2020 ambitions; and to agree upon a panel statement to be published as part of ABB's annual Sustainability Performance Report.

The panel members represent key stakeholders of the company and are selected for their level of know-how and skills relevant to ABB.

The panel consists of the following members (two members are new to the panel):

- **Jermyn Brooks**, Chair Business Advisory Board, Transparency International
- **Prof. Volker Hoffmann**, Professor for Sustainability and Technology, ETH Zurich
- **Dr. Ajay Mathur**, Director General, The Energy and Resources Institute (TERI)
- **Shirley Mills**, Vice President, Equity Research Analyst, The Boston Company Asset Management (new)
- **Anna Nilsson**, Head of Sustainability, Swedbank Robur
- **Gianluigi Ravenna**, VP Account Management, Enics
- **Sheri Straw**, Managing Director, T&D Supply Chain, Duke Energy (new)
- **Shankar Venkateswaran**, Chief of Tata Sustainability Group, Tata Group

This statement provides an assessment of ABB's Sustainability Performance Report 2016 and reflects the views of the panel members as individuals, and not those of their respective organizations. The panel is a consensus group: Its proposals need to be approved by all of its members. If no consensus can be reached, diverging opinions will be clearly stated.

The review did not include verification of performance data underlying the report as DNV GL was commissioned to undertake independent assurance of the Sustainability Performance Report 2016. The Panel welcomes the inclusion of external assurance as a means of providing stakeholders with further confidence.

The engagement process started in September 2016, when panel members were invited to share their views of ABB's non-financial reporting and to provide feedback on the Sustainability Performance Report 2016. In February 2017, the Panel also provided input to the draft report through another conference call. Members of ABB's sustainability team attended both calls.

Based on the discussions and the feedback of panel members, this panel statement was drafted and circulated to all panel members for approval.

To ensure independence Barbara Dubach, from engagement, facilitated the external panel process.

The panel members are pleased to share their independent opinions on ABB's Sustainability Performance Report 2016.

ABB's sustainability approach

With its products and services, ABB is well positioned to become an important player in industrial digitalization and to address some of the most pressing economic, social and environmental challenges that society is confronted with while creating value for the company and society.

The transition to digitalization requires an assessment of the related sustainability challenges and the impacts thereof across the business. The Panel recommends an assessment of the social and environmental impacts of industrial digitalization and some guidance for the integration of sustainability considerations. This could be undertaken by a working group of both ABB and external experts and the results reported back by the end of 2017.

To further embed ABB's sustainability ambitions in the organization, the panel recommends incentivizing sustainability performance and to integrate material sustainability criteria beyond safety and integrity into ABB's performance compensation system.

The UN Sustainable Development Goals (SDGs) present opportunities as well as challenges for ABB. ABB considers that the most material SDGs are SDG 7 Access to energy for all, SDG 9 Sustainable industrialization and fostering innovation, SDG 13 Climate change action and SDG 8 Decent work and economic growth. For the panel, however, all SDGs are relevant and therefore a balanced consideration between the opportunities and responsibilities is needed. In the view of the Panel, ABB must also address SDGs where they have challenges, and has done so by referencing all SDGs in its 'performance against targets' dashboard.

Similarly, panel members expect ABB to highlight what is important but difficult to achieve in its Sustainability Objectives, with emphasis on the process and progress made. In this respect, ABB's [response to the 2015 panel statement](#) is an example demonstrating how ABB listens to and responds to external feedback.

Products and services

ABB's products and services can help solve some of the world's biggest problems and its impact can be huge. In this regard, the disclosure of the proportion of revenues generated from its eco-efficiency portfolio is useful and the panel welcomes that ABB plans to assess key sustainability impacts of its eco-efficiency portfolio. The choice of the methodology to measure the impact will be important.

As the proportion of revenues generated from other portfolios is still an important figure, the panel would like to understand if ABB continues to sell products less efficient than current benchmarks, and, if so, how it deals with this in the context of the eco-efficiency portfolio.

Governance and integrity

The panel commends ABB's public statement in relation to tax and recommends including an explanation why country-by-country reporting is not yet foreseen.

A remaining challenge is to choose the right projects and the right partners to avoid controversies related to large clients or projects.

Panel members suggest defining metrics to assess the achievements in the focus areas of integrity and human rights and achieve a shift from input based reporting to a focus on impact.

Responsible sourcing and human rights

ABB has made good progress in rolling out its supplier qualification scheme and the case studies in the report show examples of partnerships with suppliers and how human rights are addressed.

However, the day-to-day implementation of ABB's Sustainability Objectives, especially in the supply chain, is seen as a challenge. To address this, the panel

recommends focusing on the extent to which the procurement guidelines are being used or identifying why they are not being used and addressing potential gaps.

The Panel acknowledges that ABB has a large and complex supply chain and that it is challenging to collect and disclose relevant data about outsourced processes. The Panel recommends investigating how this might be achieved and reporting on it in the future.

The suggestions from the panel members in the 2015 report to strengthen the targets to reach ambition 2020 especially in the areas of human rights and community engagement remain valid.

Environment

As an industry leader in energy efficiency, use of low-carbon fuel and renewable energy, it is important for ABB to achieve a decrease in energy intensity. More important quantitatively, however, are the energy savings and greenhouse gas emission reductions that ABB customers achieve due to the use of ABB products. The panel encourages ABB to quantify this impact once the methodology to assess key sustainability impacts has been piloted.

In the chapter on resource efficiency, panel members would welcome information about the refurbishment and recycling of ABB's products.

Report highlights and improvement potentials

Overall, panel members have a positive impression of ABB's non-financial reporting. The report is comprehensive and well structured. It addresses key areas and the chapter 'performance against targets' is the central information hub.

Future reports should focus on the big picture and include some of ABB's learnings and challenges from current efforts being undertaken. It would also benefit from the inclusion of ABB's net positive impacts and one or two lighthouse projects that have the potential to be multiplied in other areas or cities.

Concluding remarks

The panel encourages ABB to continue its sustainability journey and to maintain its ambitious level. The greatest improvement potential is seen in the need for better measurement of the real sustainability benefits of ABB's products and services to its clients, communities and to societies as a whole. Building on existing and new partnerships, ABB should use its pioneering leadership to motivate other companies to follow suit.

Panel members are pleased to see that ABB has started to incorporate comments raised during the consultation process and look forward to assess how their recommendations will be acted upon in the future.

Stakeholder voices



Jermyn Brooks Transparency International

ABB's business is innovation, which can help solve some of the world's biggest problems. However, these technical improvements gain real power when aligned with sustainable thinking to ensure maximum value to all sections of society and it is this thinking, which informs ABB's sustainability targets.



Dr. Ajay Mathur The Energy and Resources Institute

I'd like to understand more about what the transformation to digitalization means and what the impacts of digitalization in ABB's business are. The impacts of digitalization are non-trivial and should be assessed and addressed.



Prof. Volker Hoffmann ETH Zurich

Further integrating sustainability into decision making and incentivizing sustainability performance will help to embed ABB's sustainability ambitions in the organization.



Shirley Mills The Boston Company Asset Management

A test for an organization is how it addresses difficult issues. In this report, ABB shows its process for tackling a range of challenging sustainability topics and the progress it is making.



Anna Nilsson
Swedbank Robur

A challenge for ABB is to choose the right projects and clients and to avoid controversies related to them. On the opportunity side, clean tech enhances eco-efficiency.



Sheri Straw
Duke Energy

A key element of sustainability is engaging stakeholders with meaningful and transparent dialogue. ABB is willing to do this, and the different panel members not only bring a variety of perspectives to ABB, but gain useful insights for their own organizations.



Gianluigi Ravenna
Enics

ABB's goals on safety and environmental standards are high, and clearly extend to their supply chain. However, ABB's supply chain is complex, which makes day to day implementation of their sustainability ambitions challenging. Partnering along the supply chain would help to address the challenges and create efficient processes to manage them in the future.



Shankar Venkateswaran
Tata Group

The work done by ABB on Responsible Sourcing is praiseworthy. This is a difficult and complex matter, and one that is easy to ignore, but the way ABB has gone about is exemplary. ABB's greatest contribution to a sustainable world, however, lies in its products and technology innovations and I look forward to the company developing a robust methodology to measure the impact of the use of its products by its customers on climate change and energy efficiency.

DNV GL assurance statement



Independent assurance statement

Scope and approach

ABB Asea Brown Boveri Ltd (“ABB”) commissioned **DNV GL Business Assurance Services UK Limited** (“DNV GL”, “we” and “our”) to undertake independent assurance of its Sustainability Report 2016 (the “Report”) for the year ended 31 December 2016. The scope of the Report is set out on page 74.

We performed our work using DNV GL’s assurance methodology VeriSustain™, which is based on our professional experience, international assurance best practice including the International Standard on Assurance Engagements 3000 (ISAE 3000), and the Global Reporting Initiative (GRI) Sustainability Reporting Guidelines. We evaluated the Report for adherence to the VeriSustain™ Principles (the “Principles”) of stakeholder inclusiveness, materiality, responsiveness, completeness, neutrality and reliability.

We evaluated selected performance data using the reliability principle together with ABB’s data protocols for how the data are measured, recorded and reported. The performance data in scope were: The data reported for the indicators noted in the summary of main performance indicators table starting on page 68 (GRI Indicators: EN3 EN5 EN15 EN16 EN17 EN21(VOC) EN23 LA6 and Materials) and the data reported for 2016 achievements against the nine Group Sustainability Objectives for 2020 (see objectives dashboard on pages 10-13 of the Report). We agreed to exclude lost days (LA6) from scope this year, as although it is reported to complete the relevant GRI indicator, the consolidation of this data has less focus internally.

Our scope included the selected performance data within the pdf version of the Report, but excluded additional information and case studies hyperlinked from the Report, to illustrate the sustainability programme.

We understand that the reported financial data and information are based on data from ABB’s Annual Report and Accounts 2016, which are subject to a separate independent audit process. The review of financial data taken from the Annual Report and Accounts is not within the scope of our work.

We planned and performed our work to obtain the evidence we considered necessary to provide a basis for our assurance opinion. We are providing a ‘limited level’ of assurance. A ‘reasonable level’ of assurance would have required additional work at Group and site level to gain further evidence to support the basis of our assurance opinion.

Responsibilities of the Directors of ABB and of the assurance providers

The Directors of ABB have sole responsibility for the preparation of the Report. In performing our assurance work, our responsibility is to the management of ABB; however, our statement represents our independent opinion and is intended to inform all ABB stakeholders. DNV GL was not involved in the preparation of any statements or data included in the Report except for this Assurance Statement.

DNV GL provides a range of other services to ABB, none of which constitute a conflict of interest with this assurance work. This is the third year that we have provided assurance over the full Report.

DNV GL’s assurance engagements are based on the assumption that the data and information provided by the client to us as part of our review have been provided in good faith. DNV GL expressly disclaims any liability or co-responsibility for any decision a person or an entity may make based on this Assurance Statement.

Independence

DNV GL’s established policies and procedures are designed to ensure that DNV GL, its personnel and, where applicable, others are subject to independence requirements (including personnel of other entities of DNV GL) and maintain independence where required by relevant ethical requirements. This engagement work was carried out by an independent team of sustainability assurance professionals.

Basis of our opinion

A multi-disciplinary team of sustainability and assurance specialists performed work at headquarters and site level. We undertook the following activities:

- Review of the current sustainability issues that could affect ABB and are of interest to stakeholders;
- Review of ABB's approach to stakeholder engagement and recent outputs although we had no direct engagement with stakeholders;
- Review of information provided to us by ABB on its reporting and management processes relating to the Principles;
- Interviews with seven selected Directors and Senior Managers responsible for management of sustainability issues and review of selected evidence to support issues discussed. We were free to choose interviewees and interviewed those with overall responsibility for the programmes to deliver the nine Group Sustainability Objectives for 2020. We also interviewed management responsible for sustainability in India, China, USA and Finland;
- Site visits in: Mysore, India; Xiamen, China; Vaasa, Finland; and Athens, USA. The objectives of the site visits were to review the process and systems for preparing site level sustainability data and implementation of ABB's sustainability strategy. We were free to choose the sites we visited and they were selected based on the significance of their contribution to ABB's overall environmental impacts, to provide a geographical and divisional spread in 2016, and a complementary geographical footprint to the 2014 and 2015 site visits. The selected sites were all within the top 20 sites for impacts based on the data in scope;
- Review of supporting evidence for selected claims and data in the Report. Our checking processes were prioritised according to the materiality of issues at a consolidated corporate level; and
- Review of the processes at Group level for gathering and consolidating the specified performance data and, for a sample, checking the data consolidation.

Opinion

On the basis of the work undertaken, nothing came to our attention to suggest that the Report does not properly describe ABB's adherence to the Principles. In terms of reliability of the performance data, nothing came to our attention to suggest that these data have not been properly collated from information reported at operational level, nor that the assumptions used were inappropriate.

Observations

Without affecting our assurance opinion, we also provide the following observations.

Stakeholder inclusiveness

The participation of stakeholders in developing and achieving an accountable and strategic response to sustainability.

ABB continued to work with a multi stakeholder Report review panel in 2016 and has reported its response to feedback provided by the panel on the 2015 Sustainability Performance Report. This is a good example of how the company demonstrates it is responding to stakeholder input and adds to the transparency of the Report.

We restate our recommendation that ABB consider extending its stakeholder engagement arrangements to more clearly include requirements with respect to local engagement. The outcomes of these engagements should be integrated into decision making at a global level.

Materiality

The process for determining the issues that are most relevant to an organisation and its stakeholders.

ABB has an established and appropriate Group level materiality process. The Group's intention to undertake a comprehensive materiality review to provide a foundation for the development of ABB's post 2020 sustainability objectives is appropriate. We recommend that this review also considers the extent to which different material issues are relevant at local level across the organisation.

The initiative to introduce a balanced dashboard of KPIs for internal quarterly reporting is positive. We would encourage ABB to ensure its quarterly reporting and long term targets are aligned.

The management approach for priority issues is well embedded within the business at a Group and local level. The initiative to launch a single global management system covering all aspects of the sustainability programme is positive and should help clarify minimum standards, and improve consistency of approach at local level.

We support the intention to review the target for products and services and consider alternatives that measure impacts. We recommend considering whether the impacts from the whole lifecycle of products can be measured as part of this review.

Responsiveness

The extent to which an organisation responds to stakeholder issues.

The "Performance against targets" table (pages 10-13) provides an important overview of the ambitions of the Sustainability programme. However, some targets reported are neither specific nor measurable, whilst others are indicators rather than targets. We recommend reviewing the suite of targets to ensure all are specific and measurable, and ensure associated indicators are reported alongside each target.

The report maps ABB's ambitions against the Sustainable Development Goals (SDGs) they contribute towards and this helps demonstrate alignment. Reporting against SDGs is an evolving area and the next step will be for ABB to consider how they will report against the targets that underlie the headline goals. We also recommend considering where targets should take account of other appropriate external frameworks, such as science based targets, to demonstrate ABB's contribution to addressing global sustainability challenges.

Completeness

How much of all the information that has been identified as material to the organisation and its stakeholders is reported.

ABB follows good practice for calculating and reporting on its Scope 2 GHG emissions by using both market based and location based emissions factors, adopting dual reporting for these emissions. ABB should work on improving the precision of its market based reporting, by increasing the proportion of sites using emissions factors from instruments higher in the data hierarchy as presented in the GHG protocol.

As stated last year, although ABB has a target for decreasing energy intensity, there is currently no target for reducing Green House Gas (GHG) emissions. We recommend establishing a target for reducing GHG emissions and note that ABB has identified this as a priority for 2017.

Neutrality

The extent to which a report provides a balanced account of an organisation's performance, delivered in a neutral tone.

Overall the report is balanced and the emphasis on the various topics reported is proportionate to their relative materiality. The CEO letter covers the main challenges faced during 2016. We recommend expanding on the challenges faced in the topic chapters, for example expanding on the two targets that are not on track.



Reliability

The accuracy and comparability of information presented in the report, as well as the quality of underlying data management systems.

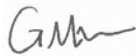
This year ABB established a new system for the collection and consolidation of environmental and social data from sites and countries. It enables prompt access to site level information, thus helping ABB analyse its performance. Going forward, we recommend that the business considers collecting data throughout the year to allow more frequent and ongoing review. This should include defining review responsibilities at site, regional and group level. This will reduce the burden of checking at year end and help to further improve data accuracy.

The indicators relating to the nine Group Sustainability Objectives have been internally developed and the definitions for most have been described or implied within the report. We recommend ABB follow best practice and include these definitions in a single "Basis of Reporting" document. Where data collection processes have already been established for reporting these indicators, the processes were clearly described by data owners. We restate our recommendation to ensure these processes are documented to ensure consistency of reporting from year to year.

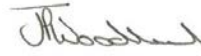
Last year we recommended that the basis of the estimated data for "CO₂ emissions from transport by own fleet" was reviewed, given that it represents around 20% of the Group carbon footprint. ABB is currently implementing processes to identify, collect and report on its CO₂ emissions from transport by own fleet, thus moving away from estimated data. At the time of our assurance, we were unable to test its progress but are supportive of this intent.

**For and on behalf of DNV GL Business Assurance Services UK Limited
London, UK**

2nd October 2017



Gareth Manning
Principal Consultant and Lead Assuror
UK Sustainability, DNV GL – Business Assurance



Jon Woodhead
Senior Principal Consultant and Reviewer
UK Sustainability, DNV GL – Business Assurance

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Summary of main performance indicators⁽¹⁾

Environmental							
GRI ref.	Indicator description	2016 data assured	2016	2015	2014	2013	2012
Materials							
	Phthalates (tons)	✓	191	878	258	21	28
	Brominated flame retardants (tons)	✓	0.0	0.0	1.9	2.9	~0
	Lead in submarine cables (tons)	✓	8,246	8,376	7,842	7,236	5,633
	Organic lead in polymers (tons)	✓	1.0	1.4	0.1	0.6	0.9
	Lead in other products (tons), eg backup batteries and counterweights in robots	✓	3,321	1,684	1,884	2,601	363
	Cadmium in industrial batteries (tons)	✓	26.4	0.8	4.4	4.4	5.6
	Cadmium in rechargeable batteries (tons)	✓	45.7	97.5	75.1	67.6	6.3
	Cadmium in lead alloy and other uses (tons)	✓	7.3	6.4	6.0	5.7	4.5
	Mercury in products (tons)	✓	0.002	0.007	0.071	0.012	0.011
	SF ₆ insulation gas (inflow to ABB facilities) (tons)	✓	1,653	1,658	1,483	1,438	1,139
	SF ₆ insulation gas (outflow to customers) (tons)	✓	1,644	1,648	1,466	1,425	1,118
	No. of transformers with PCB oil in ABB facilities	✓	0	0	0	1	1
	No. of capacitors with PCB oil in ABB facilities	✓	0	0	0	60	32
	Mercury in instruments in ABB facilities (tons)	✓	0.238	0.225	0.320	0.371	0.203
EN3	Energy consumption (Gigawatt-hours – GWh)						
	Oil (11.63 MWh/ton)	✓	71	79	85	94	93
	Diesel (11.75 MWh/ton) ^a	✓	9	8	11	0	0
	Coal (7.56 MWh/ton)	✓	0	0	0	4	0
	Gas ^{b, c}	✓	696	777	749	788	597
	District heat consumption ^{b, d}	✓	198	181	198	251	219
	Electricity consumption ^{b, c, d}	✓	1,620	1,608	1,628	1,705	1,599
	Total energy used	✓	2,593	2,654	2,671	2,842	2,508
	Electricity sold ^e	✓	2	1	2	n.a.	n.a.
EN5	Energy intensity (MWh / million \$ sales)	✓	76.66	73.79	66.01	67.10	65.25
EN6	Reduction of energy consumption (GWh)^f		13.2	32.2	34.4	n.a.	n.a.
EN8	Water withdrawal (kilotons)						
	Purchased from water companies ^b	✓	3,800	4,000	4,200	4,400	3,900
	Groundwater extracted by ABB	✓	2,300	3,200	3,100	3,200	3,000
	Surface water extracted by ABB	✓	3,000	2,400	2,800	2,700	2,800
	Collection of rain water	✓	<100	<100	<100	<100	<100
	Waste water from external source	✓	<100	<100	<100	<100	<100
	Total water withdrawal	✓	9,100	9,700	10,100	10,300	9,700
EN10	Water recycled and reused						
	Volume of water reused and recycled (kilotons)		4,800	5,200	5,200	5,900	3,700
	As percentage of total water withdrawal (%)		52	54	51	57	38

Environmental							
GRI ref.	Indicator description	2016 data assured	2016	2015	2014	2013	2012
Greenhouse gas emissions^g (kilotons CO₂ equivalent)							
EN15	Scope 1						
	CO ₂ from the use of energy ^c	✓	163	181	178	187	n.a.
	SF ₆ (in CO ₂ equivalents) ^h	✓	221	237	382	288	340
	CO ₂ from transport by own fleet ⁱ	✓	350	350	350	350	350
EN16	Scope 2						
	District heat consumption	✓	31	29	35	45	n.a.
	Electricity consumption ^c	✓	614	684	682	680	n.a.
EN17	Scope 3						
	Air travel ^{j,k}	✓	164	158	171	134	146
	Total greenhouse gas emissions	✓	1,543	1,638	1,798	1,684	n.a.
EN18	Greenhouse gas emissions intensity (tons CO₂ equivalents/million \$ sales)	✓	45.61	46.18	45.13	40.24	n.a.
EN21	Emissions of volatile organic compounds (tons)						
	Volatile organic compounds (VOC)	✓	1,105	1,223	1,291	1,210	1,355
	Chlorinated volatile organic compounds (VOC-Cl)	✓	6	13	20	20	12
	Emissions of NO _x and SO _x (tons SO ₂ and NO ₂)						
	SO _x from burning coal		0	0	0	3	0
	SO _x from burning oil		59	64	65	69	69
	NO _x from burning coal		0	0	0	2	0
	NO _x from burning oil		44	48	49	52	52
	NO _x from burning gas		150	168	162	170	129
EN22	Water discharge by quality and destination (kilotons)						
	Public sewer		4,200	3,100	3,000	3,600	2,800
	treated (percentage)		21%	28%	30%	31%	29%
	untreated (percentage)		79%	72%	70%	69%	71%
	Recipient		4,500	2,600	2,900	2,300	2,000
	treated (percentage)		15%	90%	90%	87%	45%
	untreated (percentage)		85%	10%	10%	13%	55%
	Hazardous treatment company		300	360	400	500	500
	treated (percentage)		71%	90%	75%	60%	80%
	untreated (percentage)		29%	10%	25%	40%	20%
	External use		0	<100	<100	<100	0
	treated (percentage)		—	63%	50%	50%	—
	untreated (percentage)		—	37%	50%	50%	—
EN23	Waste (kilotons)						
	Scrap metal recycled	✓	148	158	162	185	150
	Non-hazardous waste recycled ^b	✓	53	53	49	52	41
	Non-hazardous waste sent for disposal ^b	✓	37	44	44	50	43
	Hazardous waste recycled ^m	✓	7	5	5	5	0
	Hazardous waste sent for disposal ^m	✓	8	10	13	9	12
	Total waste (generated)	✓	254	270	273	301	246
EN24	Numbers of significant spillsⁿ						
	Oil spills		17	11	7	13	6
	Chemical spills		6	1	0	0	0
	Emissions to air		6	11	3	3	5
	Others		9	0	0	4	0
	Total number of significant spills		38	23	10	20	11

Social											
GRI ref.	Indicator description	2016		2015		2014		2013		2012	
LA1	Total number and rates of new employee hires and employee turnover ^o										
	Total workforce by region (ABB employees)										
	Europe	61,400		61,600	9%	63,000	10%	65,000	11%	64,000	
	The Americas	29,000		30,900	11%	32,200	12%	34,400	13%	34,400	
	Asia, Middle East and Africa	41,900		43,300	10%	45,200	11%	48,300	12%	47,700	
	Total	132,300		135,800	10%	140,400	11%	147,700	12%	146,100	
	Employee turnover										
	Turnover of all employees ^P										
	Europe	6,063	10%	5,891	9%	5,877	9%	5,387	9%	5,083	8%
	The Americas	5,338	17%	5,409	17%	5,379	17%	4,760	14%	3,689	14%
	Asia, Middle East and Africa	4,430	11%	4,946	12%	5,701	13%	5,534	13%	5,060	12%
	Total employee turnover: ABB Group	15,831	12%	16,246	12%	16,957	12%	15,681	11%	13,832	11%
	Turnover of all female employees ^P										
	Europe	1,571	2%	1,498	2%	1,370	2%	1,217	2%	1,218	2%
	The Americas	1,265	4%	1,418	5%	1,307	4%	1,026	3%	676	3%
	Asia, Middle East and Africa	882	2%	1,093	3%	1,311	6%	1,358	3%	1,093	3%
	Total female employee turnover: ABB Group	3,718	3%	4,009	3%	3,882	3%	3,601	3%	2,987	2%
	Employee hires										
	Hires of all employees ^P										
	Europe	5,656	9%	5,672	9%	6,195	10%	6,086	10%	6,793	11%
	The Americas	3,354	11%	3,573	11%	4,142	13%	4,246	12%	4,034	15%
	Asia, Middle East and Africa	2,920	7%	3,777	9%	5,493	13%	5,219	10%	5,875	14%
	Total employee hires: ABB Group	11,930	9%	13,022	10%	15,830	12%	15,551	11%	16,702	13%
	Hires of all female employees ^P										
	Europe	1,681	3%	1,520	2%	1,597	3%	1,453	2%	1,590	3%
	The Americas	937	3%	769	2%	1,010	3%	971	3%	821	3%
	Asia, Middle East and Africa	586	1%	761	2%	1,308	3%	1,467	3%	1,231	3%
	Total female employee hires: ABB Group	3,204	2%	3,050	2%	3,915	3%	3,891	3%	3,624	3%

Social										
GRI ref.	Indicator description	2016 data assured		2016	2015	2014	2013	2012		
LA6	Occupational health and safety: Injuries, lost days, diseases and fatalities									
	Employee work-related fatalities ^{s, u}	✓		0	0	1	0	1		
	Incident rate ^t	✓		0.00	0.00	0.01	0	0.01		
	Employee business travel fatalities ^{s, v}	✓		1	0	0	0	1		
	Incident rate ^t	✓		0.01	0.00	0.00	0.00	0.01		
	Contractor work-related fatalities ^{s, u}	✓		5	2	2	7	2		
	Contractor business travel fatalities ^{s, v}	✓		2	0	0	0	0		
	Members of the public fatalities ^s	✓		0	1	0	1	0		
	Employee total recordable incident number ^{u, w}	✓		1,140	1,310	1,500	1,664	1,750		
	Incident rate ^t	✓		7.90	8.79	9.95	10.94	13.04		
	Contractor total recordable incident number ^{u, w}	✓		277	343	333	310	348		
	Incident rate ^t	✓		6.95	8.02	7.76	7.52	8.21		

Social							
GRI ref.	Indicator description	2016 data assured	2016	2015	2014	2013	2012
	Employee lost time incident number ^u	✓	441	531	652	686	683
	Incident rate ^t	✓	3.04	3.55	4.34	4.70	4.80
	Contractor lost time incident number ^u	✓	118	163	200	158	159
	Incident rate ^t	✓	2.96	3.81	4.65	3.83	3.76
	Employee lost days due to industrial incidents ^x		6,905	7,831	8,415	10,591	10,345
	Days lost rate ^t		47.82	52.56	55.22	77.50	74.64
	Employee occupational health diseases	✓	65	46	17	10	10
	Employee occupational health disease rate ^t	✓	0.45	0.31	0.11	0.14	0.07
	Safety Observation Tours (SOT) conducted ^u	✓	178,473	139,124	-	-	-
	SOT rate ^y	✓	1.24	0.92	-	-	-
	Hazards reported ^u	✓	621,849	520,942	-	-	-
	Hazards reporting rate ^y	✓	4.31	3.51	-	-	-

Data by region

Employee work-related fatalities: ABB Group	✓	0	0	1	-	-
Europe	✓	0	0	0	-	-
The Americas	✓	0	0	0	-	-
Asia, Middle East and Africa	✓	0	0	1	-	-
Employee business travel fatalities: ABB Group	✓	1	0	0	-	-
Europe	✓	0	0	0	-	-
The Americas	✓	1	0	0	-	-
Asia, Middle East and Africa	✓	0	0	0	-	-
Contractor work-related fatalities: ABB Group	✓	5	2	2	-	-
Europe	✓	0	0	0	-	-
The Americas	✓	0	0	0	-	-
Asia, Middle East and Africa	✓	5	2	2	-	-
Contractor business travel fatalities: ABB Group	✓	2	0	0	-	-
Europe	✓	0	0	0	-	-
The Americas	✓	2	0	0	-	-
Asia, Middle East and Africa	✓	0	0	0	-	-
Employee total recordable incident rate: ABB Group	✓	7.90	8.79	9.95	-	-
Europe	✓	9.62	10.18	11.55	-	-
The Americas	✓	11.84	14.01	15.66	-	-
Asia, Middle East and Africa	✓	2.74	3.08	3.93	-	-
Contractor total recordable incident rate: ABB Group	✓	6.95	8.02	7.76	-	-
Europe	✓	16.91	18.77	19.72	-	-
The Americas	✓	14.69	15.35	14.01	-	-
Asia, Middle East and Africa	✓	3.46	3.71	3.46	-	-
Employee lost time incident rate: ABB Group	✓	3.04	3.55	4.34	-	-
Europe	✓	4.67	5.55	6.60	-	-
The Americas	✓	2.92	3.30	4.00	-	-
Asia, Middle East and Africa	✓	0.77	0.84	1.21	-	-
Contractor lost time incident rate: ABB Group	✓	2.96	3.81	4.65	-	-
Europe	✓	9.25	10.34	13.76	-	-
The Americas	✓	8.08	8.39	8.60	-	-
Asia, Middle East and Africa	✓	0.73	1.17	1.52	-	-

Social							
GRI ref.	Indicator description	2016 data assured	2016	2015	2014	2013	2012
	Employee days lost rate: ABB Group		47.82	52.56	55.22	-	-
	Europe		59.79	73.24	82.53	-	-
	The Americas		78.07	60.16	82.82	-	-
	Asia, Middle East and Africa		9.89	17.38	17.20	-	-
	Employee occupational health disease rate: ABB Group	✓	0.45	0.31	0.11	-	-
	Europe	✓	0.87	0.56	0.22	-	-
	The Americas	✓	0.22	0.24	0.28	-	-
	Asia, Middle East and Africa	✓	0.45	0.00	0.00	-	-
	SOT rate: ABB Group	✓	1.24	0.92	-	-	-
	Europe	✓	0.76	0.51	-	-	-
	The Americas	✓	1.87	1.41	-	-	-
	Asia, Middle East and Africa	✓	1.53	1.17	-	-	-
	Hazard rate: ABB Group	✓	4.31	3.51	-	-	-
	Europe	✓	3.65	2.67	-	-	-
	The Americas	✓	4.78	4.25	-	-	-
	Asia, Middle East and Africa	✓	5.03	4.19	-	-	-
HR3	Non-discrimination						
	Total number of incidents of discrimination		0	0	1	1	2
	Total number of incidents of harassment		5	8	10	10	13
SO6	Public policy						
	Financial and in-kind political contributions		\$10,400	\$12,600	\$13,000	0	\$30,000
LA9	Training and education						
	Training per year per employee (average hours)						
	Canada		18	30	20	18	22
	China		25	22	26	27	31
	Finland		15	17	19	18	14
	Germany		18	18	18	16	16
	India		3	2	12	12	18
	Italy		10	12	12	19	16
	Poland		12	10	11	12	10
	Sweden		10	10	12	12	12
	Switzerland		15	14	16	20	19
	US		24	27	32	28	24
LA12	Diversity and equal opportunity^o						
	Composition of governance bodies						
	Board of Directors						
	Women in Board (percentage)		18%	13%	13%	13%	13%
	Age group diversity (percentage)						
	<30 years old		0%	0%	0%	0%	0%
	30-50 years old		0%	0%	0%	0%	0%
	>50 years old		100%	100%	100%	100%	100%
	Number of nationalities		10	8	7	7	7

Social							
GRI ref.	Indicator description	2016 data assured	2016	2015	2014	2013	2012
	Executive Committee						
	Women in Executive Committee (percentage)		9%	9%	9%	9%	8%
	Age group diversity total (percentage)						
	<30 years old		0%	0%	0%	0%	0%
	30-50 years old		18%	27%	36%	45%	25%
	>50 years old		82%	73%	64%	55%	75%
	Number of nationalities		7	8	8	8	8
	Employees in senior and middle management						
	Women in senior and middle management		18%	17%	15%	15%	15%
	Men in senior and middle management		82%	83%	85%	85%	85%
	Total workforce (ABB employees)						
	Women in total workforce		23%	23%	22%	22%	21%
	Men in total workforce		77%	77%	78%	78%	79%

- ⁽¹⁾ Note that in this table, data for the Thomas & Betts acquisition is included from 2013 onwards. Data for the Baldor acquisition is included from 2012 onwards. Values in the table may not add up to the totals due to rounding.
- ^a Diesel consumption was reported separately for the first time in 2014.
- ^b Results for these indicators are based on reported data covering 97 percent of employees in 2016 (95 percent in 2015, 93 percent of employees in 2014, 85-88 percent in earlier years) plus estimated energy use per employee for the remaining employees. See the Approach to reporting section for more details.
- ^c Gas and electricity consumption and the associated greenhouse gas emissions have been re-stated for 2012-2015, due to the correction of earlier conversion factor errors at one of our large facilities.
- ^d ABB Sustainability Performance Reports prior to 2014 included calculated "losses at utilities" for district heat and purchased electricity consumption in total energy consumption. In this report, those loss calculations have been removed for all years shown.
- ^e Data for electricity sold was reported for the first time in 2014.
- ^f Data for reduction of energy consumption was reported for the first time in 2014.
- ^g See Approach to reporting chapter for more details on GHG emission calculation.
- ^h In 2015, we updated the factor used to convert emissions to CO₂e equivalents to 22,800 kg CO₂e/kg SF₆, as recommended by the UK Department of Energy & Climate Change in July 2014, and have applied that factor to SF₆ data reported for all years (2011-2015). Previously we used 22,200 kg CO₂e/kg SF₆.
- ⁱ Estimated data.
- ^j The air travel indicator included data from ABB Bulgaria, Croatia, Greece, Kazakhstan and Romania for the first time in 2016 and from ABB China and Thomas & Betts for the first time in 2014.
- ^k Data for air travel are calculated using the emission factors published by the UK Department of Environment, Food and Rural Affairs (DEFRA in its "2016 Guidelines to DEFRA / DECC's GHG Conversion Factors for Company Reporting).
- ^l Data is not available in this form for 2012.
- ^m Hazardous waste as classified in the country where it is generated.
- ⁿ An environmental incident is regarded as significant if at least one of the following criteria applies to the incident: obligation to inform local authorities or a governmental agency about the incident and/or regulatory violation; inspection by an environmental agency results in a formal complaint; environmental Notice of Violation, a Consent Order or a Potential Responsible Party (PRP) notification; imposition of a penalty or a fine; significant impact on an ecosystem; costs related to the incident exceed, or may exceed, \$10,000.
- ^o See further data on employees by age group in the GRI Index of the Sustainability Report 2016 online.
- ^p Includes part-time employees. Turnover rate calculated as number of ABB employees (full- and part-time) leaving during the year/total number of ABB employees (full- and part-time) as at 31 December. For the purpose of this calculation, employees who leave the organization voluntarily or involuntarily whether due to dismissal, retirement, or death in service or any other reason, are included. However, involuntary turnover arising out of divestments is excluded from the definition.
- ^q 2013 data from Thomas & Betts, a company acquired by ABB during 2012, does not include contractors.
- ^r 2012 data does not include incidents from Thomas & Betts, a company acquired by ABB during 2012.
- ^s Fatalities also include deaths occurring within one year as a result of injuries sustained.
- ^t Incident rates are according to the ILO rate per 1,000 employees.
- ^u Data covers incidents that happened at workplace (ABB facility, customer site, project site).
- ^v Incidents during air travel on business trips are excluded.
- ^w Total recordable incidents include fatal, lost time injuries, serious injuries, medical treatment injuries, occupational diseases and restricted work day cases.
- ^x Days lost are calendar days and are counted from the day after the incident.
- ^y Rate is calculated per employee.

Approach to sustainability reporting

Reporting boundaries

We cover all ABB Group companies in our formal sustainability reporting system, including wholly owned subsidiaries and majority-owned joint ventures worldwide. In 2016, our environmental and social reporting did not cover SARPI – Société Algérienne pour la réalisation de projets industriels, Alger. A full list of direct and indirect subsidiaries is shown in our Annual Report 2016.

Changes in 2016

Entities acquired during 2015, including Striebel and John, CGM Group, gomtec GmbH and Viola Systems, are now integrated into ABB's sustainability reporting system.

Note that data for gas and electricity consumption and the associated greenhouse gas emissions (GHG) have been re-stated for 2012-2015, due to the correction of earlier conversion factor errors at one of our large facilities.

Data collection processes

We use two online data reporting systems to measure and collect performance data throughout the Group: one system collects monthly health and safety data inputs from all entities in every country, while the other system collects annual social data from every country and annual environmental data from every manufacturing and service site and the majority of office locations. During 2016, we implemented a new, cloud-based system to collect social and environmental data.

Data in this report relating to health and safety, and social performance covers substantially all ABB employees, whereas data relating to environmental performance was sourced from more than 580 ABB sites and offices, covering approximately 97 percent of employees. The environmental performance of the remaining employees, located in non-manufacturing entities without significant impacts, is covered by estimated data for energy, water and waste parameters.

The estimation factors used for 2016 are as follows:

	Unit	Factor
Electricity consumption	MWh/employee	2.9
District heat consumption	MWh/employee	1.3
Gas consumption	MWh/employee	0.6
Water purchased from utilities	tons/employee	13.8
General waste sent for disposal	tons/employee	0.09
General waste sent for recycling	tons/employee	0.05

Calculation of energy and greenhouse gas data

ABB uses a market-based method to calculate and report Scope 2 GHG emissions. For purchased electricity and district heat, we have obtained local emission factors from suppliers. Where those factors were not available, we have sourced factors from the IEA CO₂ Emissions from Fuel Combustion, 2013 or from national or regional inventories. Fuel emission factors are sourced from the GHG Protocol's Emission Factors from Cross Sector Tools (April 2014).

Scope 2 GHG emissions for electricity have also been calculated using the location-based method and are provided for comparison below.

Scope 2 GHG emissions from electricity	kiloton CO _{2e}
Market-based	614
Location-based	656

GHG emissions from air travel are calculated using the emission factors published by the UK Department of Environment, Food and Rural Affairs (DEFRA in its "2016 Guidelines to DEFRA / DECC's GHG Conversion Factors for Company Reporting"). Data for 2012-2015 have been re-stated using these updated factors.

In 2015, we updated our methodology to account for GHG emissions and described these changes in the ABB Group [Sustainability Performance Report 2015](#). GHG data calculated using this method are available from 2013.

Assurance process

ABB believes in the importance of independent external assurance to enhance the credibility of our sustainability report. The independent assurance provider DNV GL has provided assurance of environmental and social performance indicators, as shown in the Summary of performance indicators table, and has reviewed key data and claims in the report and the data reported against our Sustainability Objectives 2014-2020. Their statement appears on page 64 of this report.

Global Reporting Initiative G4 application

ABB's sustainability performance reporting is guided by the Global Reporting Initiative's (GRI) G4 Guidelines. Accordingly, we use a materiality assessment to help us focus this report on those issues that are most important to our internal and external stakeholders. Omission from the material issues covered in our report does not mean that the issue is not managed by the company. The GRI content index for this report is available online.

UN GLOBAL COMPACT

Communication on Progress for 2016

The company

ABB (ABBN: SIX Swiss Ex) 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 135,000 employees. www.abb.com

Statement of support

Ulrich Spiesshofer, ABB Chief Executive Officer

“Since joining the UN Global Compact as a founder member in 2000, ABB has been working to embed its 10 core principles into our business operations and company as a whole. ABB’s Sustainability Objectives for the coming years reflect these principles, covering environmental, human rights and labor issues, and integrity among other areas. In addition, ABB’s business operations and strategic goals also support a number of the UN Sustainable Development Goals, including those aimed at ensuring access to affordable, reliable and sustainable energy for all, and efforts to combat climate change. As part of our ongoing commitment to the Global Compact, ABB was also actively involved in 2016 in the UNGC summit and in focused initiatives at a local network level.”

Human rights

Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights

- Human Rights Policy and public statement adopted by ABB Group in 2007. Policy updated in 2016
- Further work to embed human rights into business decision-making processes, including risk review for projects. Human rights considerations integrated in supply chain questionnaire, the Supplier Code of Conduct, and the mergers and acquisitions process.
- Human rights considerations embedded in internal protocol for deciding where ABB should have business activities.
- Global human rights training continued in 2016. An awareness-raising program for senior managers has so far been delivered in 16 countries; the training is aimed at business managers, and key functions such as Supply Chain Management, Human Resources, Legal and Integrity, Communications and Sustainability.
- A capacity building program to raise human rights capability continued in 2016 with further targeted courses for Business Unit specialists on Health, Safety and Environment and for country sustainability specialists. A network of internal specialists was launched

towards the end of 2014. An e-learning human rights module was launched in early 2015.

- Active participation in international meetings, organizations and workshops seeking to promote business awareness and respect for human rights.

Principle 2: Make sure they are not complicit in human rights abuses

- Human Rights Policy adopted in 2007 and amended in 2016, is designed to raise performance and avoid complicity. Specifically, the issues of human trafficking and slave labor were added to a number of policies in 2016.
- Global human rights training continued in ABB in 2016. The target group is as above in Principle 1. Central to all such trainings is the issue of potential complicity.
- Ongoing work to understand and limit ABB exposure to conflict minerals, as defined by section 1502 of the Dodd-Frank Wall Street Reform and Consumer Protection Act.
- In-depth due diligence carried out on several proposed projects and business partners to avoid potential complicity.

Labor

Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining

- Embedded in Code of Conduct, Principle 1 of ABB Human Rights Policy and Principle 6 of ABB Social Policy. All countries were asked to formally report on this principle. No violations were reported in 2016.
- In countries where law does not permit this right, ABB facilitates regular consultation with employees to address areas of concern.

Principle 4: The elimination of all forms of forced and compulsory labor

- Covered by ABB Group Code of Conduct, Principle 1 of ABB Human Rights Policy and Principle 4 of ABB Social Policy. Additions were made to both policies in 2016 to cover human trafficking and slave labor. All countries were asked to formally report on this principle. No violations were reported in 2016.
- The principle of “no forced or compulsory labor” is included in ABB’s Supplier Code of Conduct and a protocol for supplier audits.

Principle 5: The effective abolition of child labor

- Included in ABB Group Code of Conduct, Principle 1 of the ABB Human Rights Policy and Principle 3 of ABB Social Policy.
- All countries were asked to formally report on this principle. A total of 240 audits of suppliers were carried out in 2016, and no violations were reported.

- The principle of “no child labor” is included in ABB’s Supplier Code of Conduct as well as a protocol for supplier audits.

Principle 6: Eliminate discrimination in respect of employment and occupation

- Contained in ABB Group Code of Conduct, Principle 1 of the ABB Human Rights Policy and Principle 7 of ABB Social Policy. All countries were asked to formally report on this principle. There were five substantiated cases of harassment in 2016, resulting in four terminations and one resignation.
- ABB also has country-specific procedures and programs to ensure that policies are fully observed and comply with national legislation.

Environment

Principle 7: Business should support a precautionary approach to environmental challenges

- Environmental considerations mandatory in the ABB GATE model for product and process development. Supporting tools and training materials have been developed to further improve application of checklist.
- Standardized Life Cycle Assessment procedures used to assess new products’ environmental impact throughout their life cycle.
- Group-wide list of prohibited substances for products and processes is continually reviewed and updated. The phasing out of hazardous substances is part of ABB Sustainability Objectives.
- ABB continuing its internal energy efficiency program, with target to reduce energy use by 20 percent by 2020, and increase focus on resource efficiency (namely improve materials and water use, and reduce waste)
- Environmental experts at country and Group level provide environmental expertise, guidelines and tools to business units to ensure they meet upcoming environmental requirements and challenges, and customer demand for compliance and other environmental information.

Principle 8: Undertake initiatives to promote greater environmental responsibility

- Work with international organizations and initiatives, such as the World Business Council for Sustainable Development, ISO and the United Nations Environment Programme.
- ABB has implemented a strengthened protocol for auditing of suppliers’ environmental performance, auditing a further 240 suppliers during 2016.
- ABB’s ongoing Access to Electricity rural electrification program in India.

Principle 9: Encourage the development and diffusion of environmentally friendly technologies

- Covered by Code of Conduct and Principle 5 of ABB Environment Policy.
- Energy-efficient products and renewable energy equipment identified as key driver for ABB’s business opportunities.
- Transfer of technologies and best practices between

countries to ensure same level of environmental performance throughout Group.

- Group-wide list of prohibited substances for products and processes is continually reviewed and updated. The phasing out of hazardous substances is part of ABB sustainability objectives.
- ABB GATE model for product and process development contains defined steps for considering improvements in environment and safety performance. The processes supporting the health, safety and environment checklist for the GATE model were strengthened during 2016.

Anti-corruption

Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery

- Covered by ABB Group Code of Conduct, the ABB Supplier Code of Conduct, Principle 4 of ABB Human Rights Policy, and Principle 13 of Social Policy.
- Underpinned by zero tolerance policy on non-compliance.
- During the third quarter of 2016 ABB rolled out a new global anti-bribery essentials e-learning module across ABB Group to the white collar community. The blue collar community received face-to-face training during 2016. The completion status at year-end was an average of just over 90 percent for the e-learning and face-to-face training.
- ABB offers a number of different reporting channels, including a third party-held Business Ethics hotline available 24/7 where employees can report concerns confidentially.
- As part of the anti-corruption program, ABB continued to carry out several additional training and communication initiatives in 2016, focusing on company leadership and middle management, and including Code of Conduct and anti-bribery e-learning, integrity leadership development sessions, Value Pair workshops, and case studies published on the intranet, and proactive action such as anti-bribery compliance reviews of ABB units around the world.
- ABB was recognized as one of The World’s Most Ethical Companies by the Ethisphere Institute in the first quarter of 2016. The NYSE Governance Services reviewed ABB’s integrity program in 2014 and, as a result, ABB was once again recognized with the Ethisphere Anti-corruption Program Verification and Compliance Leader Verification seals covering 2015 and 2016.
- ABB is one of the founding members of Ethics and Compliance Switzerland (ECS; May 2014). ECS promotes the development of a compliance community across all sectors and organizations in Switzerland and the establishment and sharing of compliance best practices. It is the first NGO in Switzerland connecting private and public sector organizations and their officers and employees who share an interest in best practice on integrity and compliance management.