04 Responsible operations

SAFE OPERATIONS

Working to eliminate workplace incidents worldwide

ABB's license to operate depends on its ability to meet the highest safety standards

The safety of our people and assets is ABB's first priority, embedded in our core values. We remained focused on this priority even while undertaking the transformation of the ABB business model in 2019, using it as an opportunity to enhance the principles of our safety programs.

In 2019, ABB's safety performance showed clear, sustained improvements, fully supporting and mandating the HSE/SA global management system entitled "The ABB Way". Our HSE/SA global management system is a key element of our sustainability governance framework, as it enabled us in 2018 to reduce our more than 300 independently certified HSE/SA management systems down to one standard system for everyone.

Implementing "The ABB Way" clarified and simplified our expectations for performance, while enhancing awareness and knowledge of performance requirements across the organization. Once this single management system was firmly established, we were able to increasingly define and consolidate health, safety, environment, security, sustainability and corporate responsibility performance standards. In 2019, "The ABB Way" received third-party certification (two certificates, for ISO 14001:2015 and ISO 45001:2018), demonstrating we are well on our way to obtaining a single global multisite certification for our management system.

In parallel with this project, we continued to successfully implement further global applications from our new single Management Information System (MIS) for HSE/SA. In 2019, we formed a team of specialists to work with our businesses to enhance the MIS. Together, they further developed ABB's modules for crisis and incident management, trained more than 1,500 people in incident management alone and introduced a governance model for MIS that reinforces the principle of business-led responsibility.

The MIS now reflects ABB's business structure and is fully integrated with ABB systems, providing strong support for our continued drive towards zero safety incidents. This includes a new Report Portal, which all ABB employees can use to analyze trends and indicators to inform decisions on safety. Data reported in the system is used in measuring HSE performance; more than 300,000 hazards were reported via the system, with 97 percent of them resolved.

A further safety highlight in 2019 was the formal launch of ABB's Group Life Saving Rules, which are eight simple actions for everyone across ABB to consistently and fairly apply.

Our target for safety was to reduce the employee total recordable injury frequency rate (TRIFR) to less than 0.7 by the end of 2020. We performed well in 2019, with our employee TRIFR in the workplace ending the year at 0.47, down from 0.58 in 2018. This continued progressive improvement to industry standards represents 134 fewer recordable injuries than the previous year. While we are currently ahead of our 2020 target, we are fully aware that past performance is no guarantee of future results. That is why we are committed to maintaining our strong positive momentum and to working toward achieving a TRIFR of zero.

Regrettably, ABB recorded one employee fatality and one contractor fatality in 2019. Both incidents were comprehensively investigated to understand their root causes and take action to mitigate risks of similar incidents in the future.

ABB's global independent HSE/SA audit and assurance program continued to be a valuable means of enhancing the company's knowledge and skills. In 2019, the second full year of the program, we reviewed more than 180 separate sites within our organization, using the process to assist ABB's businesses in identifying over 1,500 opportunities for improvement. Through our audits, we identified ABB's main challenges – the consistent application of risk assessment and electrical safety principles – and we reinforced our improvement programs in both of those areas.

With respect to risk assessment, in 2019 we prepared new corporate standards that seek to simplify and standardize our approach and increase its positive impact. In 2020, we will launch new processes that will initially focus on activity-based risk assessments, supported by a standardized module within the MIS.

With respect to electrical safety, although we successfully reduced all recordable electrical incidents and injuries from 75 in 2015 to 13 in 2019, in our eyes even a single electrical incident remains one too many. To better address the challenge of electrical safety, in 2019 we prepared for the introduction of a specific Electrical Competency Authorization Program (ECAP). This program defines four levels of electrical competency and will require local business line managers to authorize employees to perform work defined at each level of competency. The development of ECAP is complete and ABB's businesses view its implementation as a priority in 2020.

In 2019, we also trained over 130 people to carry out safety audits within our businesses in advance of launching the second phase of our global assurance arrangements in 2020, which involves self-assessments.

While ABB has undergone transformation, our commitment to eliminating all workplace injuries has never changed. With a clear focus and understanding of our safety priorities, we are working to ensure every ABB employee returns home safely at the end of the day.

Case study
Small actions can have a big impact
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CLIMATE ACTION

Committed to reducing emissions

ABB strongly supports international and national measures to mitigate climate change

After a concerted, multi-year effort, we are pleased to note that, in 2019, we achieved our climate action goals for 2020.

ABB supports the 2015 Paris Agreement and sees it as the linchpin of all efforts to limit global warming and allay the potentially devastating consequences of climate change. Within our own operations, we are working to reduce GHG emissions from fossil energy and transportation, as well as from the handling of sulfur hexafluoride gas (SF_6).

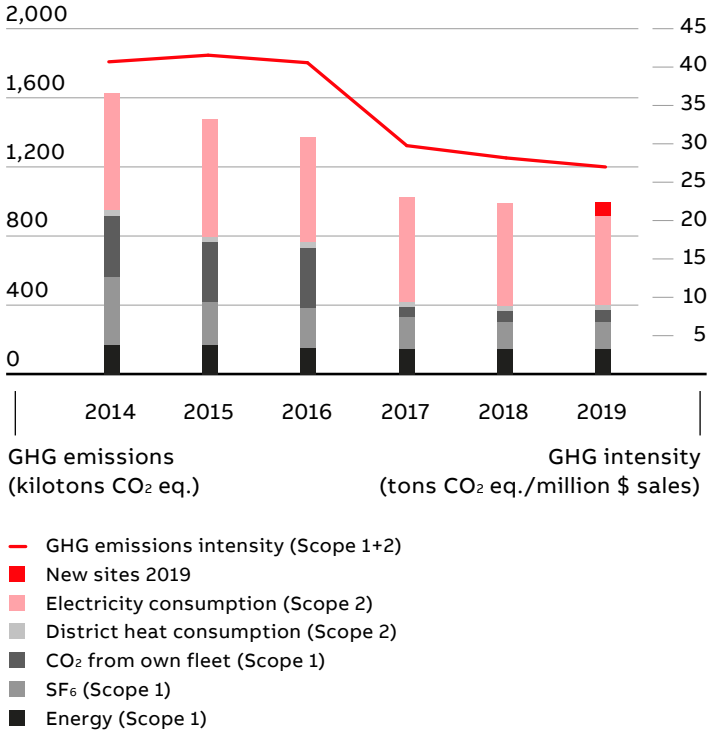
Externally, ABB actively collaborates with businesses, governments and non-governmental and civil society organizations around the world to raise awareness of society's need to transition to low- or zero-carbon energy systems. We participate in the Sustainable Energy for All initiative, the World Economic Forum's Alliance of CEO Climate Leaders and the Science Based Targets (SBT) initiative, among many others. For the SBT initiative, ABB has committed to establishing a science-based GHG emissions target for our post-2020 sustainability objectives and is currently working to calculate what this target should be. As a company with around 9,000 technologists and plans to invest some $23 billion in innovation between the date of the Paris Agreement and 2030, our advanced technologies represent ABB's main contribution to the global effort to mitigate climate change. Nearly 60 percent of ABB's global revenues are derived from technologies that directly address the causes of climate change by facilitating increased energy efficiency, the integration of renewables into the energy mix and the conservation of natural resources. Importantly, these technologies can enable circular economy principles and practices.

ABB's current target for climate action is to reduce our GHG emissions by 40 percent by the end of 2020 from a 2013 baseline. In 2019, ABB's total GHG emissions (Scope 1 and 2) amounted to 998 kilotons, representing an 8.7 percent reduction from 2018 and a 41 percent reduction from 2013.[1] Our progress to date is attributable in part to an improved methodology for monitoring emissions from our vehicle fleet. On its own, this new methodology accounted for 19 percentage points of the GHG emissions reduction we reported in 2017.

During 2019, we expanded our assessment of Scope 3 emissions to more completely understand the climate impact of ABB's supply chain. The results obtained indicate that our upstream Scope 3 emissions are roughly six times as large as our Scope 1 and Scope 2 emissions. Thanks to this assessment, we will be able to have more meaningful conversations with our suppliers on the topic of climate action.

1 Total GHG emissions from all ABB sites was 998 kilotons; total GHG emissions for all ABB sites except for the 39 new sites added in 2019, for which no 2013 baseline data exists, was 915 kilotons. The latter number is used in the evaluation of progress.

Total GHG emissions (Scope 1 and 2) and GHG intensity



In several European countries, all of our electricity is supplied from renewable sources. In 2019, 348 GWh, or 21 percent of all electricity used by ABB, was purchased as certified “green” electricity, an increase of 6 percentage points over 2018.

Importantly, the measures we took last year to strengthen the ability of our businesses to track their resource efficiency are starting to pay dividends. In 2019, for example, our Motion business started on its journey toward using 100 percent green electricity; Motion has already assured that 38 percent of its electricity use is green. This effort alone has cut ABB’s GHG emissions by 63 kilotons and contributed to reducing Motion’s GHG emissions by 49 percent from our 2013 baseline. The results delivered by Motion’s program enabled us to hit our 2020 emissions reduction target. We continue to install on-site photovoltaic power plants at our facilities, which resulted in ABB’s production of solar power for its own use increasing by 47 percent in 2019.

At present, more than 250 energy efficiency projects underway at ABB sites around the world are projected to deliver more than 39 GWh of annual savings.

At ABB’s Busch-Jaeger site in Lüdenscheid, Germany, we are proving that the energy transition can be sustainably achieved via digital energy management. ABB’s first carbon-neutral and energy-self-sufficient production site in the world, the Busch-Jaeger facility features a solar power plant that will deliver around 1100 MWh of climate-neutral solar power a year. Its installed ABB technology, which includes ABB’s scalable energy management system OPTIMAX® at its core, will generate enough power to cover 100 percent of the factory’s power requirements on sunny days and reduce the site’s CO_2 emissions by 630 tons per year. For context, the average citizen of an industrialized nation generates about 10 tons of CO_2 per year.

Also in 2019, ABB Real Estate’s energy savings program reported a total of US$8.7 million annual savings from 260 completed, ongoing and planned energy-saving projects in ABB buildings, cutting our greenhouse gas emissions by 23 kilotons per year. In addition, ABB Real Estate launched the global initiative “EV charging infrastructure at ABB sites” in cooperation with the Global Solutions Team for e-Mobility. A goal for 2020 is to increase the number of ABB sites equipped with EV-charging infrastructure from 17 to 35 percent.

Case study
All-electric delivery fleet
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RESOURCE EFFICIENCY

Managing the environmental impact of our operations

ABB sites around the world are working to conserve resources

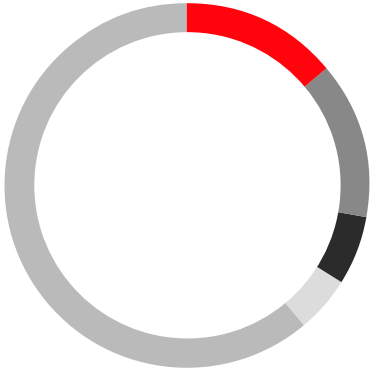
Over the past decade, we have successfully implemented a wide range of waste reduction and recycling initiatives to reduce ABB's environmental impact and bring cost savings to our business.

In the area of resource efficiency, we remain on track to meet the two targets we established for 2020. The first target is to reduce absolute water withdrawals by 25 percent from 2013 to 2020 at facilities located in watersheds with medium to extremely high baseline water stress. While the majority of our manufacturing processes are not water-intensive, we are highly motivated to minimize the water impacts of ABB's operations. We use the World Resources Institute's Aqueduct global water risk tool to assess our facilities according to the level of baseline water stress of the local watershed. Of the 573 ABB locations mapped in 2019, 74 face an extremely high level of water stress, 96 face a high level and 76 face a medium-to-high level.

For all ABB sites in stressed watersheds, total water withdrawals in 2019 amounted to 2,711 kilotons, representing a 2.4 percent[2] reduction from 2018. The overall reduction in water from water stressed sites (excluding GEIS sites acquired in 2018) since 2013 is 18.5 percent. While this overall result is good, our analysis revealed that ABB's water withdrawals in extremely stressed watersheds more than doubled this year; two of the highly stressed watersheds where our operations are water-intensive were reclassified as facing an extremely high level of water stress. In 2019, ABB's total water use went down by 4.9 percent, to 8,401 kilotons.[3] Both of these reductions were mainly due to structural changes at several ABB sites in Europe.

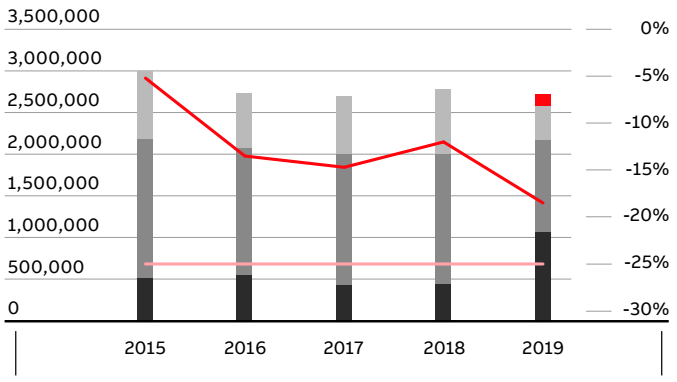
Closed-loop processes and other projects to recycle or reuse water comprise our primary water-saving practices; in 2019, such processes and projects saved 74 percent of all industrial water use and 45 percent of all cooling water use at ABB sites worldwide. There are more than 20 projects running to improve water management across ABB, with expected annual savings of 97 kilotons, or 1.2 percent of all the water we use. At our site in Auburn, Maine, United States, a rapid-impact project to better control the flow of water during a manufacturing process

Distribution of water withdrawal in 2019 (2013)



- Extremely high 14% (5%)
- High 14% (20%)
- Medium to high 6% (8%)
- Low to medium 5% (21%)
- Low 61% (43%)

Water withdrawal in water-stressed areas 2015–19



For details see indicator 303-1 on page 45.

2 Total water withdrawals in stressed watersheds, for all ABB sites was 2,711 kilotons; total water withdrawals for all ABB sites except for the 39 GEIS sites acquired in 2018, for which no water data exists prior to 2019, was 2,575 kilotons. The latter number is used for measuring target progress against the 2013 baseline.

3 Excluding the 39 new sites we added in 2019, ABB's total water use went down by 9.5 percent.

delivered water savings of 8,000 tons of water and annual cost savings of $300,000.

Our second resource-efficiency target is to reduce the share of waste ABB sends to final disposal – both hazardous and non-hazardous – by 20 percent from 2013 to 2020. Using the criteria established when our measures and targets were developed, we met this target one year ahead of schedule, having achieved a 21 percent reduction in the proportion of all waste we sent to final disposal in 2019, compared to the 2013 baseline.[4] In-house recycling and reuse, mainly of packaging materials and thermoplastics, reduced the amount of waste by 2,100 tons.

To increase transparency and drive improvement, in 2019 we started asking our sites to be more specific about how their general waste was disposed. This approach revealed that more than 40 percent of the general waste ABB sent for disposal was subject to incineration with energy recovery (the conversion of non-recyclable waste materials into usable heat, electricity or fuel through a variety of processes). We also found a difference in how ABB sites around the world have been reporting on waste sent for incineration with energy recovery: In 2018, around 75 percent was reported as disposed and some 25 percent as recycled. We believe this practice has been the same since we started measuring this statistic in 2013. Using the new, more precise method of reporting of waste disposed as the basis for the KPI would give a 13.5 percent reduction, as shown by the solid line in the "Waste and recycling" graph.

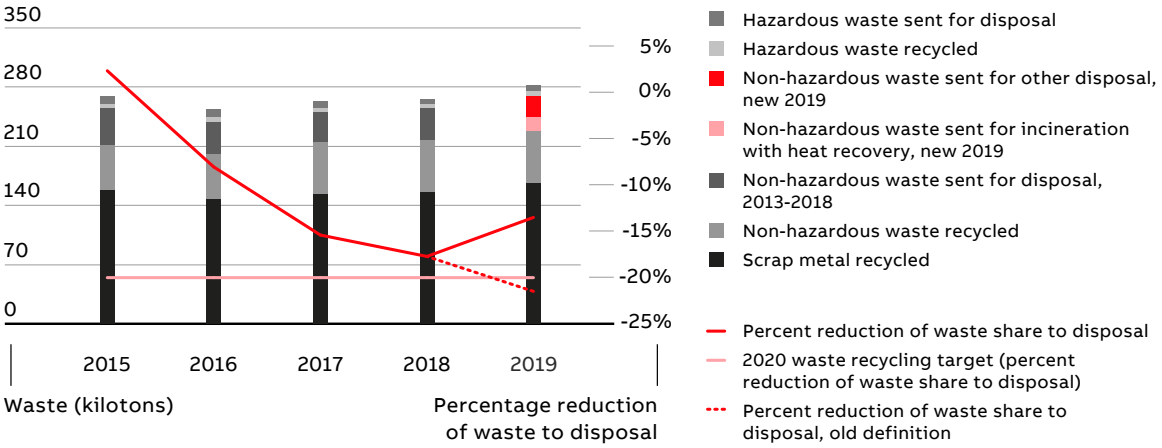
More than one hundred recycling and waste reduction projects were underway at ABB in 2019, bringing huge benefits to our operations.

For example, ABB Composites in Sweden saved 76 tons of silicone by reducing the scrap rate, which cut our costs by $550,000 per year. And our site in Schaffhausen, Switzerland, started recycling plastic granulate in their molding process, reducing material use by 10 tons and saving $80,000 per year. Steel, copper, aluminum, oil and plastics make up the majority of materials used in our products. Most of these materials are reclaimable at the end of a product's life, and we deliberately design ABB products to be recycled; almost all of our products come with recycling instructions and can be dismantled easily.

In addition, our facilities across the world take it upon themselves to innovate and improve manufacturing processes and recycling to address waste reduction. All ABB sites are required to analyze their waste management practices and work with their waste management vendors to optimize recycling options. In 2019, our High Voltage Direct Current (HVDC) power transmission business, while reviewing its environmental policies, boosted this waste management effort as it began pursuing a "Lean HVDC" concept that will reduce the use of materials and waste in the design of its converter stations. Across ABB, we have also taken steps to implement the principles of the circular economy to reduce waste. Using this approach, the Motion business in 2019 entered a new collaboration with Stena Recycling that will recycle end-of-life motors in a way that enables better separation of metals. By recycling aluminum, copper and iron, we save up to 95 percent of the energy it takes to produce those metals conventionally. These recycled metals will also be sold locally if possible, to further reduce carbon emissions.

The application of ABB's digital sensors to existing electric motors can further support the circular economy by enabling predictive maintenance that keeps them in use, optimizing energy efficiency and fostering an understanding of the real cost of ownership. To support the achievement of our waste reduction target in 2019, we continued to share best practices across ABB and provided further guidance on how to reduce waste generation and increase recycling rates.

Waste and recycling



4 This includes all ABB sites except for the 39 new sites we added in 2019, for which no 2013 baseline data exists.

RIGHT MATERIALS

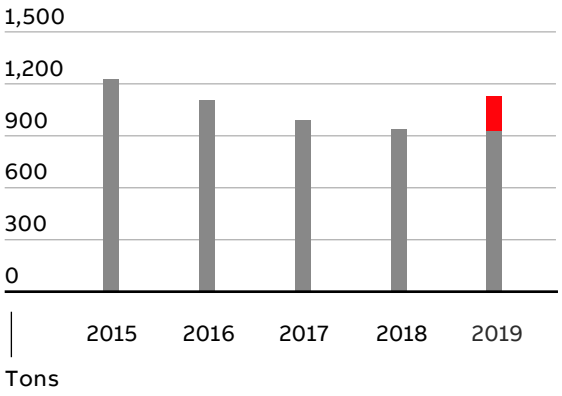
Removing hazardous substances from our operations

Wherever possible, ABB is eliminating unsafe materials from its products, processes and supply chain

The ABB List of Prohibited and Restricted Substances was developed as a clear guide to enable us to reduce and eliminate the use of hazardous materials. It applies to all our operations, including sourcing of goods, product development, production processes, products, packaging materials, service activities and construction sites, and is updated regularly in keeping with international regulations.

ABB's Global Terms and Conditions for suppliers and our ABB Supplier Code of Conduct address this issue in the context of regulatory compliance.

Emissions of volatile organic compounds (VOC)



To assist suppliers in meeting their obligations, we have developed a companion guide to the list. These obligations include partnering with us to identify restricted substances and conflict minerals and prevent them from entering ABB's supply chain.

ABB is strongly focused on avoiding the use of conflict minerals, as outlined in the ABB Policy on Conflict Minerals. We have taken action to support responsible mineral sourcing, establishing our Conflict Minerals Program in line with the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas. Under the Dodd-Frank Act, we annually report to the United States Securities and Exchange Commission on our use of conflict minerals. In May 2019, we provided our sixth report, which identifies products and components likely to contain tin, tantalum, tungsten and gold (also known as "3TG") and links them to their relevant suppliers. To date, 302 smelters and refiners of 3TG used by our extended supply chain have been identified. In addition, we continue to engage in the Responsible Minerals Initiative.

Our 2020 target for hazardous substances is to reduce ABB's emissions of VOCs by 25 percent from 2013 levels. This target further sharpens our strong focus on reducing the use of substances that are harmful to human health and the environment.

Since 2013, we have reduced ABB's VOC emissions by 24 percent,[5] and we are committed to making even greater reductions in the years ahead. The result was achieved through such measures as utilizing low-VOC paints and varnishes and installing active carbon filters and other equipment at our production facilities.

From 2015, we have made substantial progress in our efforts to reduce ABB's use of hazardous materials. In that time, we have reduced our use of chlorinated paraffins by 100 percent, dimethyl phthalate by 100 percent, asbestos-containing materials in our buildings by 32 percent, boric acid by 90 percent and aluminosilicates by 41 percent. Among the major initiatives underlying these achievements was a screening program developed by ABB's Electrification business with its suppliers. Its task is to monitor and eliminate hazardous substances from components supplied to ABB. In 2019, this program gathered data on more than 125,000 product components and worked with more than 5,000 suppliers to satisfy our mutual obligations under the European Union's REACH and RoHS regulations.

In 2019, our cross-functional material compliance team expanded the webinar training program launched in 2018. The program informs employees about our obligations under REACH, RoHS and the ABB List of Prohibited and Restricted Substances.

5 This includes all ABB sites, except for the 39 new sites added in 2019, for which no 2013 baseline data exists.

In 2019, we established a dedicated, Group-level program for product material compliance management, in addition to the cross-functional material compliance team and material compliance network. Our objective is to reinforce ABB's standardized and systematic approach to the increasingly complex material compliance regulations we face in our global markets. To this end, we promote and introduce business-wide best practices to help accelerate full product compliance with these regulations.

In 2019, 55 projects were underway to reduce and phase out hazardous substances and VOC emissions. Due to the variety and specialized nature of ABB's products and processes, hazardous substance reduction is typically addressed on a site-by-site basis.

In Xiamen, China, we installed a filtration device for our site's silicone injection process and reduced its VOC emissions by 720 kg, or 96 percent. In Athens, Tennessee, United States, we improved our manufacturing site's wastewater treatment process to clean the hazardous wastewater sludge resulting from alkaline zinc electroplating with a trivalent chromium conversion coating. Our annual savings from cleaning this hazardous wastewater are $120,000. And in Nogales, Mexico, we added an inhibitor to the varnish of our site's dip process; this helped save 25 tons of solidified varnish – thus eliminating the need to dispose of cured resin, which is a hazardous waste. This measure will deliver $70,000 in annual management cost savings for materials and hazardous waste.

RESPONSIBLE SOURCING

Ensuring sustainable supply chains

ABB's procurement processes help minimize social and environmental impacts

ABB is committed to improving the sustainability of our supply base. The ABB Supplier Code of Conduct (SCoC), which is published in 16 languages, lays out the standards that we require of our existing and potential business partners. The SCoC forms part of our suppliers' contractual obligations, highlighting expectations with regard to areas such as human rights, fair labor conditions, business ethics, health & safety and environment & material compliance, as part of ABB's general terms and conditions.

To further enhance responsible sourcing, we continue to deploy the ABB Supplier Sustainability Development Program (SSDP), which proactively screens and prioritizes (using a combination of geographical, category and economic factors) sustainability risks posed by suppliers, evaluates their adherence to the SCoC and engages them when necessary. The SSDP includes supplier trainings and onsite assessments on 42 parameters related to general management, labor rights, social benefits, health and safety and environment.

For every area of non-compliance identified by our supplier assessments, we launch a supplier support action to systematically address each issue in turn. Our support actions include capacity building, customized participatory workshops, sharing best practices, jointly implemented collaborative programs and the transfer of knowledge and expertise. We have found this proactive approach results in better supplier responses and improved performance standards.

Every year, ABB trains, coaches and assesses hundreds of suppliers on their sustainability practices. This is a continuous process, in which old risks are closed and new ones are identified each year. The time required to close a sustainability risk can range from one month to over a year, depending on its complexity. Since 2015, we have identified an average of 723 new risks each year. Due to the ongoing identification of new risks and the time required to mitigate them, our closure rate for identified risks can never be 100 percent.

Our 2020 target is to close 65 percent or more of identified risks from supplier assessments. In 2019, ABB continued to exceed this target, closing 78 percent of identified risks in 2019, up from 76 percent in 2018. We achieved this strong result thanks to our focused program management, continued engagement with our suppliers, onsite support, pre-assessment training and focused workshops for our suppliers.

While ABB believes in working with suppliers to improve their performance, there are consequences for suppliers who are unwilling to align their performance standards with our requirements. During 2019, ABB terminated business with three suppliers due to unsatisfactory progress on their respective corrective action plans.

In 2019, we analyzed supplier assessments conducted from 2014 to 2018 and found the most frequent major non-conformance issues observed were unsafe working practices, lack of environmental management system compliance, no health & safety risk analysis and no environmental risk analysis. To address these shortcomings, we continued to raise awareness through initiatives such as our specially designed workshops on health, safety, environmental and labor requirements of the SSDP.

Among other key initiatives in 2019, we designed and implemented multiple workshops in China on various sustainability compliance concerns that were identified during supplier assessment.

Top ten sustainability non-conformance issues in 2019[6]

General management	• 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	• Excessive working hours and overtime
Health and safety	• 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 • Ineffective programs for management and reduction of hazards in high risk areas • Inadequate communication of health & safety hazards
Environment	• Non-compliance with relevant environmental regulations/parameters • Improper waste management processes

6 Includes critical, serious and minor non-conformances.

More such workshops will be organized in other countries in 2020. We also continued our collaboration with suppliers to find solutions for some of the chronic challenges they face regarding working conditions. On the technical side, we supported suppliers with operational data analysis and visits to their factories to identify potential areas for intervention.

To address sustainability in our procurement activities, ABB assesses hundreds of suppliers on their sustainability practices and provides training on improvement actions. This engagement helps ABB to strengthen our supply base and gives our customers confidence in the sustainability of their extended supply chain.

Timo Ihamuotila – Chief Financial Officer

In 2019, we assessed 168 suppliers, identifying 574 risks. We mitigated 562 risks during this period. In other activities to support responsible sourcing, we trained 245 ABB employees and 195 suppliers during the year. Click here to learn more about how ABB defines risk.

Case study
Implementing sustainable process improvements

Read more