

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.

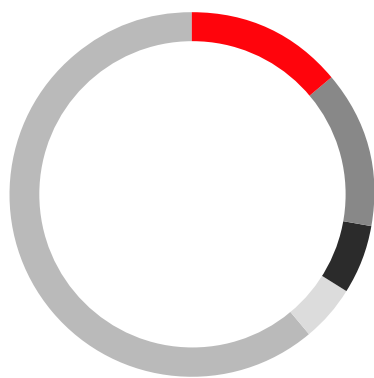
In the area of resource efficiency, we remain on track to meet the two targets we established for 2020. The first target is to reduce absolute water withdrawals by 25 percent from 2013 to 2020 at facilities located in watersheds with medium to extremely high baseline water stress. While the majority 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 percent² 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)

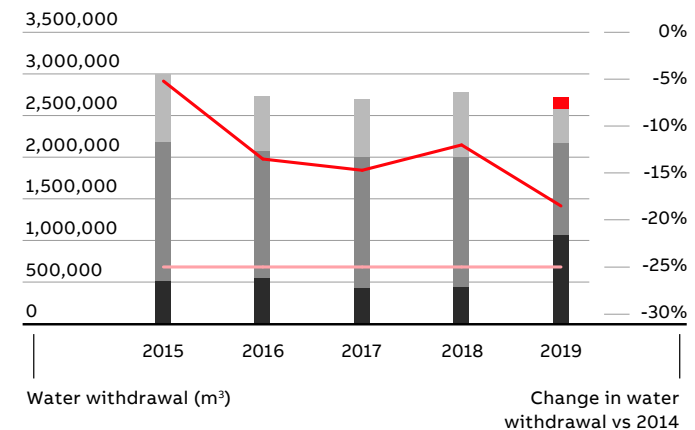


- Extremely high 14% (5%)
- High 14% (20%)
- Medium to high 6% (8%)
- Low to medium 5% (21%)
- Low 61% (43%)

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.

Water withdrawal in water-stressed areas 2015–19



- Reduction %
- Target %
- New sites 2019
- Medium to high
- High
- Extremely high

For details see indicator 303-1 on [page 45](#).

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.

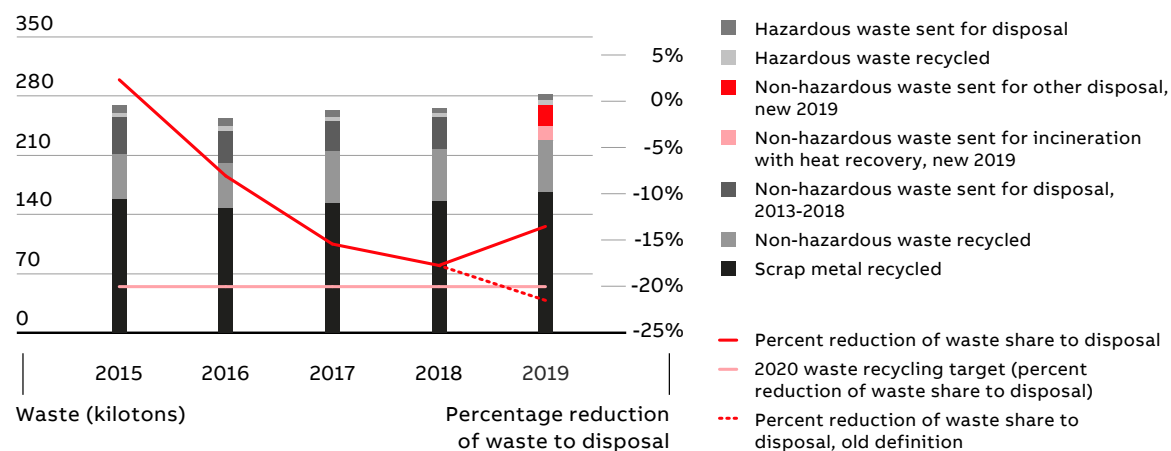
For example, ABB Composites in Sweden saved 76 tons of silicone by reducing the scrap rate, which cut our costs by \$550,000 per year. And our site in Schaffhausen, Switzerland, started recycling plastic granulate in their molding process, reducing material use by 10 tons and saving \$80,000 per year. 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.