

Improved energy efficiency and reduced emissions in Alfa Laval's operations

The planet faces some big challenges. Energy demand is rising, and carbon emissions must be reduced to reach the goals of the Paris Agreement. A key to achieving this sustainably is by improving energy efficiency. As 50% of the potential for energy efficiency savings comes from the industrial sector, Alfa Laval must play their part. It starts with implementing energy efficient solutions in the company's own operations to drive down Scope 1 emissions.

Alfa Laval's carbon emission targets are clear; net zero for Scope 1 and 2 by 2030, and net zero for Scope 3 by 2050. Scope 1 emissions are greenhouse gas emissions from sources that are owned or controlled by Alfa Laval, and directly contribute to climate change. As an industrial leader, reducing these emissions is not only a moral imperative but also a strategic business decision. It is effectively done by enhancing energy efficiency within Alfa Laval's own operations.

"Since we set our targets 2020 we have reduced our operations' carbon emissions by more than 50%. At the same time, we have increased our turnover by more than 50%. That's quite an accomplishment. We have both improved our energy efficiency and switched to renewables. 97% of our electricity comes from renewable sources."



Anna Celsing
Chief Sustainability Officer, Alfa Laval

Challenges

One of the main emission reduction challenges is in the older facilities. When considering the installation of heat pumps for example, it is important to evaluate whether it is worthwhile to retrofit existing locations or prioritize insulating the buildings before implementing technical upgrades. Simply replacing natural gas with heat pumps is not an optimal solution, as it may not align with employee comfort or energy efficiency. While electricity tends to be costlier than natural gas, one must find ways to optimize energy efficiency and reduce operational expenses (OPEX).

Additionally, on the production side, there are further complexities. For instance, in China, current production processes rely on gas-driven pressers. However, these are gradually being phased out and replaced by electrical pressers.

Examples from Alfa Laval production sites

Qingdao, China

At the Qingdao site, natural gas is the main source of energy for production processes. Most of the consumption comes from heat treatment, like annealing process, and from keeping the building heated and ventilated. During the winter, up to 74% of the natural gas is used for heating. By controlling the building and workshop heating system, the site has managed to reduce natural gas consumption significantly. Thanks to these efforts, the energy consumption of the heating system went from 2135 MWh in wintertime to 988 MWh, which is a 53% reduction.

Lund, Sweden

At the Gunnebo site in Lund, the low temperature waste heat that is generated in the component production has been recovered via an innovative ammonia-based heat pump system. Prior to the heat pump installation, Alfa Laval purchased around 3 700 MWh of district heating. Today that number is reduced by an estimated 85% thanks to process heat recovery. The waste heat alone can accommodate both space heating and hot water demand, while preventing the environment to the exposure of roughly 146 metric tons of CO₂ per year.



Gunnebo site, Sweden

Alfa Laval editorial



Qingdao site, China

Future projects

The work to reach net zero emissions in Alfa Laval's Scope 1 continues. While the sites in China explore ways to further reduce natural gas consumption, similar actions are underway on Alfa Laval sites all over the world. Noteworthy projects include:

Monza Site (Italy)

Test drills are being conducted to assess the feasibility of utilizing geo-thermal heat for heating processes, potentially replacing natural gas.

WCR Service Centres (US)

These centres are actively investigating the transition from natural gas-driven ovens to electric ones for their gasketing processes. A total of 11 ovens would be replaced, resulting in annual emission savings of 800 tonnes of CO₂.

Alfa Laval continuously explore emerging technologies to solve the problems of energy demand, while driving down CO₂ emissions. Every year new opportunities arise to unlock the full potential of resources, improve business results, and reshape the vital industries that society depends on.



Living our Commitments