



Our vision for a better and greener future

Is your HVDC supplier undertaking an LCA?

Climate change is accelerating, and its impact is being felt across the globe. Stakes are getting higher than ever for companies to reassess their priorities and products, and for customers to reassess their suppliers. Profit is no longer prime. Sustainability is. Nowhere else is this being felt more than in the energy sector – one of the biggest contributors to global warming as of today.

As countries embark on Industry 4.0 and power demand rises, the energy sector is increasingly coming under duress. The clamor for alternate energy is getting louder and louder. Age-old carbon-intensive coal combustion for electricity is being slowly phased out in favor of clean energy.

Thanks to the Sustainable Development Goals adopted by the United Nations and the Paris agreement, countries are cutting down carbon dioxide emissions by as much as 85 percent and moving toward renewable power. The U.K. has already become the first economy in the world to pass laws to bring all greenhouse gas emissions to net zero by 2050. Sweden is targeting 2045 for the same.

Wherever this change is taking place, or will take place, it will be underpinned by smart technologies that make the transition more seamless, while accounting for on-ground demographic and geographic realities.

HVDC transmission has been a breakthrough in connecting remote regions with national grids, efficiently transmitting large amounts of electricity, with a significantly small carbon footprint through the integration of renewable energy into the grid.

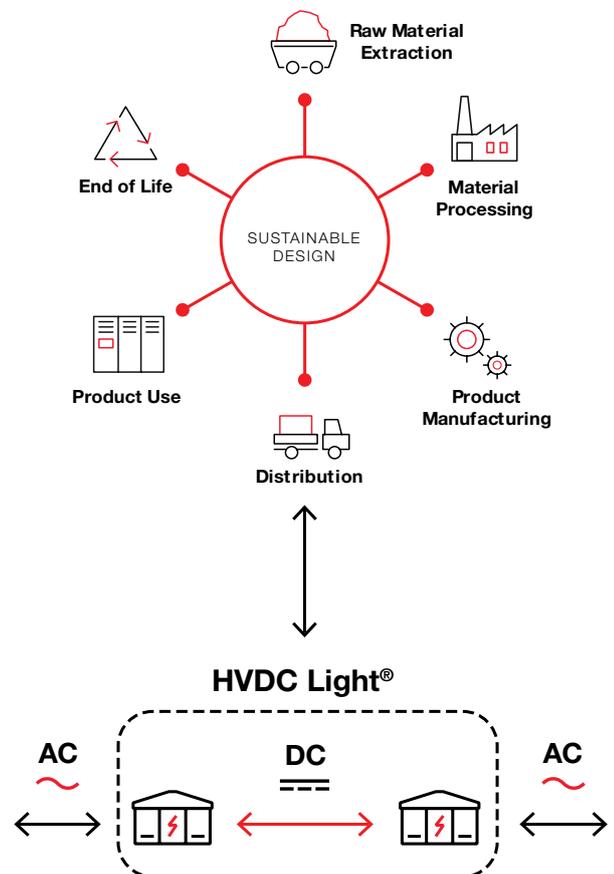
But how small a carbon footprint are we talking about? Is HVDC really the best alternative to locally-generated fossil-based power? Can customers of HVDC technology know that their climate impact is lower?

Yes, they can.

Why life cycle assessment?

To ensure that the evolution in technology is indeed smarter and cleaner, and that customers are engaging with climate-conscious suppliers, life cycle assessment is crucial. A life cycle assessment (LCA) shows the environmental impact of a product over its whole lifetime, from extracting raw materials through operation to end of life.

Between 2018 and 2019, we undertook one such assessment for its newest HVDC Light® Generation 5 technology. The IVL Swedish Environmental Research Institute conducted the study based on the latest ISO (International Organization for Standardization) standards to quantify the solution's impact on climate. It also gauged how much the HVDC technology had improved over the last 10 years.





In any HVDC converter station, power losses are the main driver of environmental impact. Over the complete lifetime of a station, losses can account for more than 90 percent of the total climate change impact, depending on the country's energy mix. Civil and construction materials, constituting more than 80 percent of a converter station, have the second biggest impact.

The study results revealed that over the past decade, the latest HVDC Light® curtail conversion losses by nearly two-thirds and further reduced the environmental impact cutting down on materials used in civil design. HVDC Light® converter stations now consume less land.

Carbon footprint from the HVDC Light® converter technology was shown to be one-third of what it was ten years ago. Put into service, one HVDC Light® link between the U.K. and France could cut the CO₂ emissions by 1 million tons per year, the equivalent climate impact of 200,000 U.K. citizens.

HVDC is clearly an environmentally preferable alternative for transmission of low-carbon electricity to countries with carbon-intensive electricity generation. Furthermore, when compared to conventional HVAC transmission, HVDC transmission has approximately half the carbon footprint.

With the help of the LCA, Hitachi ABB Power Grids keeps track of its advances toward a cleaner and environmentally responsible future. It helps the company to continually improve its material compliance process regarding hazardous and regulated substances, such as lead or SF₆, and meet customers' information requirements on carbon footprint and the environmental impact of the technology over the whole life cycle.

Our motto at Hitachi ABB Power Grids is to run the world without consuming the earth. We encourage our customers to choose suppliers who hold themselves to standards bespoke with a vision for a better and greener future. Does your supplier do the same?

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