Maximize reliability while minimizing risk of downtime for your installation

Life cycle services for HVDC Transformers
As HVDC transformer and reactor fleets continue to age and demand for reliable energy continues to rise, ABB provides expert and comprehensive services that ensure high availability and reduce risk—while lowering environmental impact.
Early Life Services
0 – 12 years

We are your partner from Day 1 with installation and commissioning.

Our lifecycle services start at take-over, providing 24/7 monitoring and maintenance. Our support team is there to help you address any issues that may arise during the warranty period. During the post-warranty (service) period, our support team continues to handle any issues that arise. We also proactively minimize the risk of any issues with preventive, scheduled maintenance.

24/7 Support
ABB’s HVDC Care Agreements ensure rapid response when incidents arise, driving operational excellence, performance improvement and maximum uptime.
Mid Life Services
12 – 25 years

We help you avoid that anticipated mid-life crisis by monitoring the condition of your HVDC transformers and taking corrective action whenever needed.

We look for improvement and changes in performance—and uncover future limitations. Using visual inspections, oil and gas analyses, system data review and other methods of asset assessment, we make recommendations for each unit based on its history, status and your future requirements.

Any upgrades we make use the latest technology to extend the life of your units, increase rating and reduce risk. Our predictive maintenance keeps your HVDC transformer available and reliable—and reduces your total cost of ownership.

Proactively upgrading your transformer before outage occurs reduces significant direct and indirect downtime costs. The need for upgrading depends primarily on the:
- age of the transformer
- general condition of the unit
- potential unavailability of spare parts in the future
End of Life Services
25 years and beyond

In a certain time, your HVDC unit will approach the end of its life. When that happens, ABB is on hand with asset assessment services, workshop repairs and replacement units.

We use a mix of preventive and corrective maintenance to keep your transformer operating at peak efficiency for as long as it makes financial and operational sense. We check the condition of your system and its components to ensure system performance, safety, availability and reliability.

End of Life Services

- Condition and Asset Assessment
- Workshop Repairs
- Replacements
- Spare Parts
- Service Agreements

Extended transformer life with effective services

Stresses impacting transformer life
1. Extreme weather event
2. System fault
3. Emergency overloading
4. Increased harmonics

Transformer end of life with operational stress
Potential expected transformer end of life

MAXIMIZE RELIABILITY WHILE MINIMIZING RISK OF DOWNTIME FOR YOUR INSTALLATION
Life cycle services for HVDC Transformer Fleets
Reducing risk throughout the life cycle

ABB helps owners of HVDC links maximize the return on transformer assets by driving reliability, reducing life cycle costs and ensuring optimized performance for your specific links need.

Why condition assessment?
- Reduce risk of unexpected transformer failure causing forced outages and grid blackout
- Reduce total spend by introducing predictive maintenance and optimized investments
- A basis for strategic planning for each individual unit and whole fleet
- Extended use in time

How?
- Looking for any weakness or changes in performance as well as future limitations:
  - Visual inspections, leakages, surface condition
  - Oil and gas analyses
  - Electrical measurements
  - System data review, historical and future
  - Design review as-built and new solutions
  - Theoretical calculations
  - Strategy for HVDC link

The outcome
- Leveraging our domain knowledge and experience to provide specific solutions for each HVDC transformer based on history, actual status and future need.
- Example of deliverables for each transformer:
  - Units’ unique fingerprint with quantified risk for failure and remaining lifetime
  - Actions to mitigate risk
  - Upgrades with latest technology
  - Replacement

Rapid response
We ensure fast response to maximize your equipment uptime.

Life cycle management
We couple domain expertise and proprietary algorithms with deep knowledge to optimize and extend your equipment life.

Performance improvement
We optimize the connectivity, reliability and efficiency of your assets to enhance operations.
Case studies

**Client**
Energinet in Denmark and Statnett in Norway

**Situation**
The HVDC link between Denmark and Norway had an elevated risk for failure due to many years in service.

**Solution**
ABB conducted a comprehensive fleet and condition assessment, followed by a refurbishment that included replacing bushings, gaskets, valves, and control cables, and repairing internal transformer connections and welding tank lid.

**Results**
ABB extended the life and reliability of the Skagerrak 1 & 2 HVDC link without any major capital expenditure in new units.

**Client**
Svenska Kraftnät

**Situation**
The station Lindome of the HVDC link Konti Skan needed to evaluate the future functionality in a 20 year perspective.

**Solution**
ABB conducted a comprehensive condition assessment, followed by urgent need to replace 3 bushings and some gaskets. Recommendations were given to further investigate some elevated risks identified.

**Results**
ABB secured the reliability of the converter transformers in Konti Skan Lindome station, avoiding a forced outage.
For more information, please contact:
ABB Power Grids.
Operating in more than 100 countries.
abb.com/grid/customer-connect