Life cycle services for Power Electronics
Maximize your return on investment
All industries have a common goal: to maximize their production output at the lowest possible cost while maintaining top-quality end products. On the road to achieving their goal, they face:

+ Increasing demands for higher reliability and availability
+ Escalating operational and capital expenditure associated with running a plant or process
+ Regulation in the energy sector and increasing grid code requirements
+ Constant pressure to improve productivity
+ Stricter environmental and safety regulations

A key ABB objective is to maximize customer process uptime by providing secure, low-cost guarantees of an optimum service life for all ABB products. Throughout a product’s life, ABB provides training, e-learning and technical support, and arranges service contracts – all backed by a world-class global sales and service network.

The benefits of using ABB services include:

+ Lower operational costs
+ Improved productivity
+ Lower investment costs
+ Reduced environmental impact
+ Enhanced safety
+ Long-term partnership

Lower operational costs
During the life of a product and even before it enters service, ABB can help streamline operations. Correct product selection and dimensioning, combined with ABB’s preventive maintenance programs, will bring maximum efficiency and performance to the process, while minimizing production downtime and lowering operational and running costs.

Improved productivity
For the ABB services team, the No. 1 priority is to keep the plant running. And the right preventive maintenance plan can dramatically reduce the risk of plant or process stoppages.

A combination of individual services such as training and technical support with preventive and corrective maintenance will improve productivity and maximize process uptime.

Lower investment costs
ABB’s preventive maintenance programs increase service life, minimize replacement costs and lower investment, while appropriate service plans extend the life cycle of ABB equipment by several years.

Reduced environmental impact
Energy-efficient operation lowers costs. And when the life cycle is complete, ABB will ensure that equipment disposal methods meet all local environmental regulations.

Enhanced safety
Throughout the life cycle of ABB power electronic systems, plant safety is assured through rapid fault diagnosis and rectification thanks to services such as remote monitoring.
Maximize your return on investment
With life cycle management

Maximizing return on investment
Products change – through component replacement and hardware deterioration, or due to software upgrades. Furthermore, the service life of many products and systems can last well over 20 years. So the design of upgrades must ensure compatibility between older and state-of-the-art technologies.

Customers also demand high levels of availability plus uninterrupted performance. To meet these requirements, ABB offers comprehensive life cycle management and evolution programs.

At the heart of ABB’s services is its life cycle management model. All services relating to ABB power electronic systems are planned according to this model. As a result, customers find it easy to see which services are available at which life cycle phase.

For enhanced customer support and improved efficiency, ABB follows a four-phase model for managing a system’s life cycle.

Based on this four-phase model, system-specific maintenance schedules allow the customer to know precisely when spare-part replacements and all other maintenance related actions are due. The model also helps the customer decide about upgrades, retrofits and replacements.

To minimize scrapping, upgrades and component replacements are accomplished selectively. Only equipment that is due for replacement will be exchanged, while fully serviceable components will be retained.

Maximize your return on investment
With life cycle management

Limited life cycle services
The system, with complete life cycle services, is available for purchase.

Classic
The system, with complete life cycle services, is available for plant extensions.

Limited
Spare parts, maintenance and repair services are available as long as materials can be obtained.

Obsolete
ABB cannot guarantee availability of life cycle services for technical reasons or within reasonable cost.

To ensure the availability of complete life cycle services, a system must be in the Active or Classic phase. A system can be kept in the Active or Classic phase by upgrades, retrofits or replacements.

Complete life cycle services
ABB's life cycle management phases

**Active**
The Active phase is typically a 5-10 year period following the initial release of a product when the systems are available for sale and fully supported with spare parts, maintenance schedules and product design enhancements. Upgrades and retrofits of older models to the latest technology are also covered in the Active phase.

**Classic**
Normally, the Classic phase covers the next 7-10 year period and applies to products that are no longer in the standard production and development cycle. Nevertheless, products and systems continue to be supported with a full range of services and spare parts. Systematic product maintenance, upgrades and life cycle extensions will keep the system in the Active and Classic phases.

**Limited**
During the Limited phase, which typically covers the next 12-20 years, support for the system may be restricted by the availability or accessibility of suitable technology and components. The provision of spare parts and maintenance is based on availability. To extend the system’s operational life, ABB offers auxiliary services that, for example, support migration to the next product generation or facilitate retrofit options and upgrades.

**Obsolete**
At this stage of the life cycle, ABB cannot guarantee life cycle services because technical know-how may no longer be available or components may be out of stock. Migration to the next product generation is therefore strongly recommended, and life cycle management planning at an earlier stage ensures that a product’s transition into the obsolescence stage does not risk the integrity of plant operation.

Systematic product maintenance for enhanced reliability and performance
Preventive maintenance and reconditioning schedules are designed to ensure product reliability and optimum performance, as represented by the horizontal orange line. If preventive maintenance and reconditioning are neglected, the product’s performance and reliability will follow the brown line – mainly through component aging and deterioration.

However, at a suitable point in its life cycle, shown by the yellow line, a product’s reliability and performance can be enhanced by upgrades, retrofits or replacements, thus ensuring that the product remains in Active or Classic phase as described above.
Maximum service and product support
At any life cycle stage

The services offered by ABB Power Electronics Service Centers span the entire cycle from the moment of a custom-
     er's initial inquiry to disposal and recycling of the product. Throughout the service life, ABB provides training, technical support and custom contracts – all supported by a world-class global sales and service network.

Pre-purchase
ABB provides a range of services that guide customers to the right products so they attain maximum process efficiency and performance.

Installation and commissioning
While many customers have the resources to carry out installation and commissioning on their own, ABB and its channel partners offer professional installation and start-up services.

Operation and maintenance
With global presence and expert access, ABB provides the customer with fast and efficient analysis of the operational product and the process. From site surveys to preventive maintenance and reconditioning, ABB has all the resources required to keep processes running.

Spares and repairs
A full stock of spare parts is available for all ABB products. Repairs can be undertaken on-site, or off-site at approved ABB repair workshops.

Upgrades and retrofits
ABB's retrofit and upgrade services are time- and cost-effective solutions that improve performance and extend the life cycle of operational equipment at minimal cost. The service includes advice on plant retrofit options while taking into account technological developments and the life cycle of existing equipment.

Replacement and recycling
ABB can advise on the best replacement products while ensuring that the disposal of existing products meets all local environmental regulations.

PowerAssetMonitor™
An intelligent diagnostic tool for continuous condition monitoring and system analysis. Additionally, PowerAssetMonitor™ features a real-time remote access option.

Benefits:
+ Faster fault tracking for shorter MTTR
+ Reduction of necessary on-site work
+ Prediction of wear trends and long-term data analysis
+ Secure remote access for support – control is with the end user

Life cycle services for Power Electronics
Along the entire life cycle, from pre-purchase to replacement and recycling of a product, ABB offers product and general technical training in the classroom and via the Internet.

**Classroom training (instructor-led training)**
Formal training courses are provided by product or service specialists. Typically, training comprises theoretical presentations and hands-on exercises.

**e-learning (web-based training)**
To meet the growing interest in e-learning from its customers, ABB offers hundreds of Internet-based course modules.

**On-site training**
A full range of training services are also offered by local ABB sales and service companies and their channel partners. Some courses are organized on the customer’s premises.

**Benefits**
The benefits of professional training include enhanced personnel and plant safety, reduced downtime, improved productivity and increased employee motivation.

Local ABB offices and ABB channel partners around the globe can provide detailed information on their training and services offering. For more information about ABB’s training centers and courses, visit the ABB University at [www.abb.com/abbuniversity](http://www.abb.com/abbuniversity).

**Technical support**
In most countries, ABB provides 24/365 advanced product and application support via telephone and e-mail, covering all stages of the value chain. Should further support be required, ABB has installed an escalation process that elevates the query through the organization up to the factory R&D level until the query is answered.

**System studies**
Solving complex power system problems requires expertise, experience and the proper tools.

Our engineers have the expertise to issue you with important guidelines that will extend the life cycle of your equipment by offering a range of system studies and solutions. ABB uses advanced software modeling tools for feasibility studies, load-flow analyses, harmonic analyses, short circuit and transient analyses, as well as failure analyses and other specialized studies.

**Benefits**
The benefits include improved cost control, enhanced operational efficiency, lower capital expenditure, reduced downtime, and an extended service life for Power Electronics systems.

**Contracts**
Depending on the customer’s requirements, ABB and its channel partners can bundle individual services into a custom contract at any stage of the value chain.

Examples of contracts are spare parts agreements and preventive or corrective maintenance agreements.
Case study 1: Control upgrade
Replacement of the rectifier control by a state-of-the-art ABB AC 800PEC control system has resulted in:

+ An extension of the expected lifetime of the rectifier system
+ A shorter mean time to repair and lower repair costs – because the control system has been restored to the Active life cycle phase and is fully supported by ABB

Accordingly, production output has been increased and the customer now intends to replace the control system on a second rectifier.

Case study 2: Industrial production
After delivery of three new ABB installations, the customer turned to ABB for advice on old rectifiers that had been supplied by a competitor. During the summer, due to the lack of cooling capacity, they could not be operated at full power. ABB analyzed the system and proposed an optimized cooling solution.

The new cooling system was dimensioned, manufactured, installed and commissioned by ABB.

As a result, plant productivity has been increased substantially – and the customer can now operate the rectifiers year-round at 100% power.

With offices in over 90 countries, ABB is well placed to offer the best technical advice and local support around the clock.

ABB’s worldwide presence is built on strong local companies. By combining the experience and know-how gained in local and global markets, we ensure that our customers in all industries can gain the full benefit from our products.

For further details about all our services, please contact your nearest ABB office or ABB Power Electronics systems channel partner, or visit www.abb.com/powerelectronics.