



Low Voltage Motor Control Center Upgrade Strategy

Services for Safe, Smart, & Sustainable Electrification

Electrification Business Areas

Leading technology portfolio that generates strong global position

Distribution Solutions



Medium and low voltage control & protection products, systems & switchgear, grid hardware, power and asset management

in Medium Voltage

Smart Power



Low voltage breakers & switches, enclosures, motor starter application, power protection, energy management

in Low Voltage

Smart Buildings



Miniature breakers, distribution enclosures, load centers, residential circuit breakers, wiring accessories, building automation

in Electrification

Installation Products



Wire & cable management and protection, termination, medium voltage for utilities, conduits, fittings & other accessories

in electrical products that connect and protect

Services



Installation and commissioning, spares and consumables, maintenance, engineering and consulting, extensions, upgrades and retrofit

in electrical equipment installed base

E-mobility



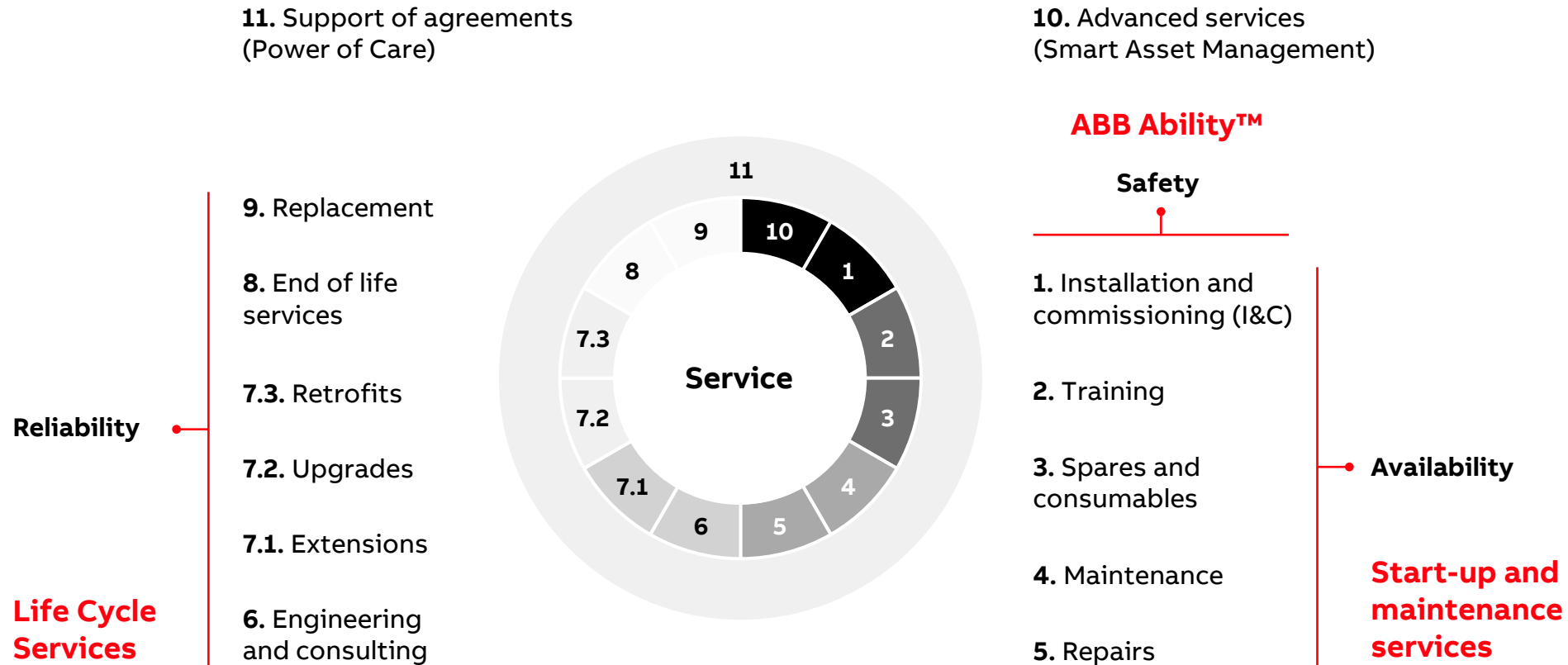
DC fast and high-power chargers, DC & AC Wallbox, bi-directional charging, heavy vehicle and bus charging, site and load management solutions, remote diagnostics and service

in charging infrastructure for cars, buses & heavy vehicles

—

Capabilities

Service at a Glance



Vision

Provide a **superior customer experience** both internal & external



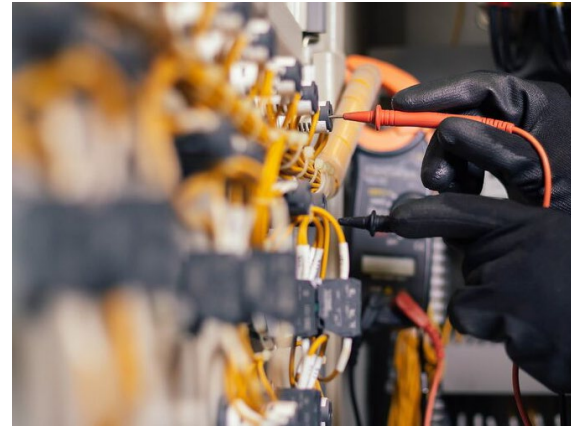
Our Mission

- Reduce total cost of ownership
- Maximize revenue for our customers
- Provide safe, smart, and reliable solutions for the entire asset life cycle

US Electrification Service

Core Focus Areas

Complete One-Line Solution for Low and Medium Voltage



Electrical Power Distribution Field Services

- Preventive Maintenance
- Installation and Commissioning
- Customer Training
- Disaster Recovery
- Testing Services

Power Consulting Services

- Arc Flash Mitigation Solutions
- Arc Flash Studies
- Short Circuit Current Limiting Devices
- Safety Personnel Training

Life Cycle Extension

- **Breaker Retrofits / Retrofills**
- **Upgrades**
- Protection and Control Upgrades
- Switchgear Add-ons and Upgrades
- Repairs

Performance Enhancement

- ABB Ability™ energy and asset manager
- Condition Based Assessment Studies
- Real Time Equipment Monitoring (temperature, humidity, partial discharge)
- Remote Service Offerings
- Service Agreements



Life Cycle Extension

LV MCC Replacement

Buckets

Life Cycle Extension Solutions

ABB's worldwide leadership and manufacturing excellence in medium and low voltage products allows ABB to provide **a variety of aftermarket solutions and services** for both conventional and nuclear safety related applications.



Low Voltage Solutions

- **MCC bucket replacements**
- MCC VFD and Starter upgrades
- ACB Breaker upgrades
 - Direct Replacement
 - Cradle-in-Cradle
 - Hard Bus
- Trip Unit upgrades and conversion kits
- Power Break & HPC upgrades
- Circuit Breaker Evaluation & Repair
 - Legacy ABB and GE Shops

Medium Voltage Solutions

- MCC
 - Air to Vacuum conversion kits
 - Relay upgrades
- LIS – Arc Flash remediation upgrade
- Direct replacements
- Hard-bus Retrofit
- Arc Furnace breaker upgrades
- Relay panel upgrades
- UFES Arc Protection
- Fault Current Limiters

ABB LV MCC Product History



— Active Product
 — Fully Supported by ELDS Services
 — ABB Predecessor with Limited Support

All products are supported by ELDS Services

Services | ABB US

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MCC Service Definitions

Term	Definition
Fastrac	Fastrac is a program that supports customer quotations and fulfillment of MCC bucket orders via part number / SKU
empower Quote	Various configurators are supported by empower to order engineered equipment or complex parts. A configurator has been built for MCC Fastrac Units, which creates a bucket part number / SKU based on features chosen by the user.
empower	Online store for ELE, which supports the quotation and ordering of parts by part number / SKU. Customers with an empower account can obtain automated quotations and place orders based on Standard Pricing Agreements (SPAs). Go to http://empower.abb.com
Tier 3	If an offering is not available by part number / SKU, an engineered (Tier 3) quotation can be supplied by Kevin Golden or John Vance in the Mebane factory, except for MNS-MCCs

E9000 and ReliaGear® LV MCC Service

Product History

- E9000 and E9000 AR are no longer active products
- ReliaGear LV MCC is the active non-AR MCC product, released in February 2021 to replace E9000
- MNS-MCC AR is the active AR product

Service Strategy

- E9000:
 - Sections compatible with ReliaGear LV MCC
 - Buckets compatible with ReliaGear LV MCC / SACE® Tmax® XT
 - ReliaGear LV MCC VFD buckets are sometimes larger: maintain E9000 VFD bucket as needed
 - Fusible switches: Maintain E9000 QMR/W feeders and starters
 - Add E9000 VFD buckets to Fastrac, empower, and Fastrac configurator
 - Upgrade empower Spare Parts Configurator
- E9000 AR:
 - Maintain existing bucket and spare part designs
 - Sell spares through empower and buckets through Tier 3
- ReliaGear LV MCC:
 - Add ReliaGear LV MCC Fastrac buckets and spare parts to the BuyLog
 - Add ReliaGear LV MCC Fastrac buckets and spare parts to empower
 - Add ReliaGear LV MCC Fastrac buckets to the empower MCC Configurator
 - Add upgraded empower Spare Parts Configurator
 - No E9000 retrofit kits are planned due to complexity and cost

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E9000 MCC

MNS MCC Service

Product History

- MNS-MCC is an active product
- MNS-MCC AR is an active product

Service Strategy

- MNS
 - New sections available
 - Fastrac buckets and spare parts are available in the BuyLog
 - Add Fastrac buckets and spare parts in empower
 - Add Fastrac buckets to the empower Fastrac Configurator
- MNS AR
 - New sections available
 - Fastrac buckets and spare parts are available in the BuyLog
 - Add Fastrac buckets and spare parts in empower
 - Add Fastrac buckets to the empower Fastrac Configurator



MNS MCC

2700, 7700, 8000 and Spectra MCC Service

Product History

- These are not active products
- All are fully supported by ELSE
- Active R&D Engineering projects:
 - Redesign 8000 buckets with SACE® Tmax® XT2 & XT4 breakers
 - Redesign spare parts with 3D models to improve manufacturing

Service Strategy

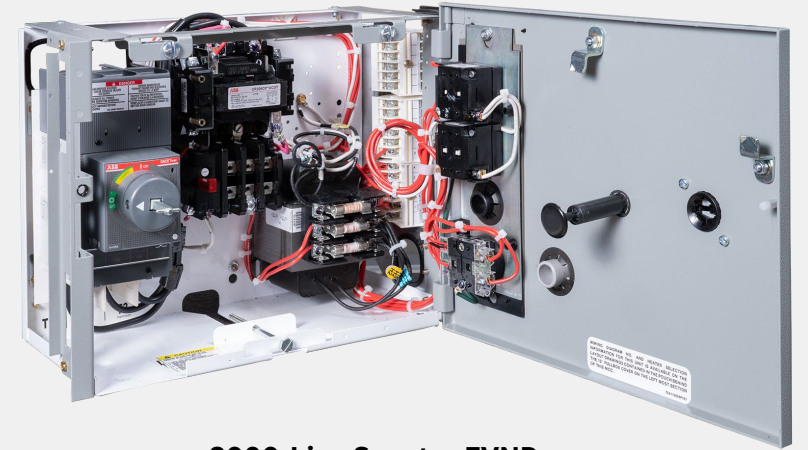
- 2700, 7700 and Spectra:
 - Spare parts available in empower
 - Compatible with 8000 buckets
- 8000:
 - Spare parts available in empower
 - Redesign most buckets with SACE Tmax XT circuit breakers
 - Maintain QMR/W fusible switch buckets
 - Offer new ABB ACS-580 / ACH-580 VFD buckets
 - Update Renewal Parts Bulletin after R&D design work is complete
- Splice-on ReliaGear® LV MCC sections are available

[Web Link](#)

[to Low Voltage MCC Bucket page](#)

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8000-Line Spectra FVNR



8000-Line SACE® Tmax® XT FVNR

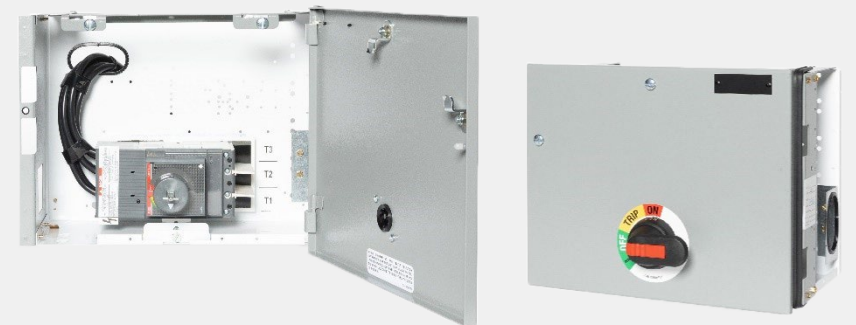
Low Voltage Motor Control Center

LV MCC Replacement Buckets

- Spectra circuit breaker replaced by SACE® Tmax® XT
- **Rotary operating handle replaces vertical handle**
- New door and other sheet metal parts
- Upgraded wiring harness
- Feeders, FVNR, FVR, 2S1W and 2S2W
- Extended length: Fastrac available from 6" to 48"
- Available with motor management relays
- **Still Compatible with 2700, 7700, Spectra and 8000**
- **Still UL845 Listed**



Old design: Spectra E&F Frame Breaker



New design: SACE® Tmax® XT2 & XT4 Breaker

Low Voltage Motor Control Center Smart Starters

LV MCC Replacement Buckets

- **ABB UMC100.3 and Schweitzer SEL 849 relays**
- **UMC100.3 fits into same footprint as existing units**
- Over / under current protection
- Ground fault protection option with sensor
- Other options available, such as communication
- Featuring SACE® Tmax® XT circuit breaker and 300-Line starter
- Still Compatible with 2700, 7700, Spectra and 8000
- **Still UL845 Listed**

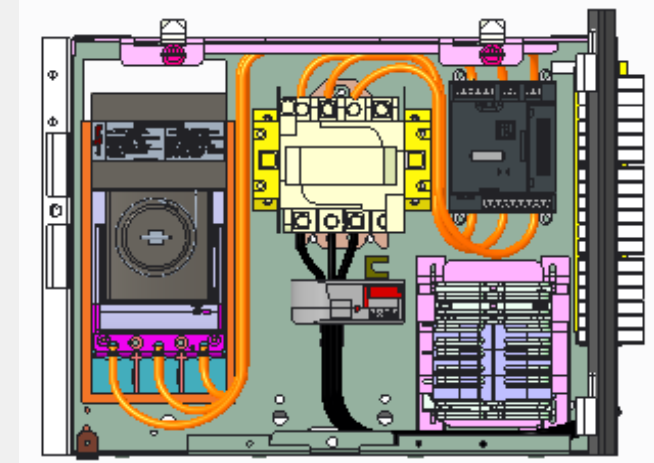


Diagram of a 12" high, Size 1 FVNR starter with UMC100.3 relays and ground fault protection.



Door of an 18" smart starter with UMC100.3 HMI installed.

Retrofit Variable Frequency Drive (VFD) Units up to 50HP (NEW)

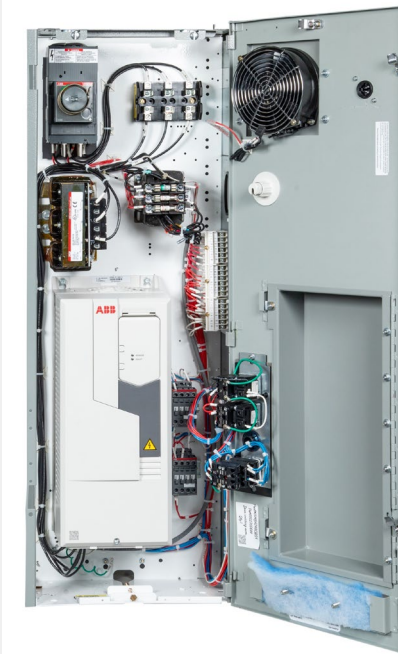
Life cycle services for 7700, Spectra and 8000-line motor control centers

- **ACS580 variable frequency drive at the core**
- Featuring ABB's SACE® Tmax® XT circuit breaker as the disconnect
- **Has remote communication options.** Can be connected to ABB Ability™ asset monitoring.
- Compatible with 7700, Spectra and 8000
- Unit sizes: NEMA 1 – NEMA 4
- VFD frames: R1 – R5
- Plug-in units up to 50 HP at 480 V
- Construction: plug in/stab in + stab-bolt for low voltage and high HP
- Retrofit is equal in size or smaller than the original AF300 VFD
- Existing UL 845 MCC ratings maintained

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**10 HP VFD unit,
36 inches high**



**25 HP VFD unit,
42 inches high**

Nuclear Dedication for 7700/8000-Line Buckets

LV MCC Replacement Buckets from Florence to end users

Product description

Nuclear MCC service for GE-branded MCCs was traditionally performed by GE's nuclear business. ABB is investing in the nuclear dedication of spare parts, buckets, starters and disconnect devices (Spectra, QMR/W and SACE® Tmax®) so that our nuclear factory in Florence, SC, can sell these parts directly to nuclear customers.

Based on recent customer feedback at the EPRI, CBUG, and NUOG conferences, many nuclear plants have large GE MCC IBs and are very concerned about support for older lineups with Spectra or older MCCBs. Opportunities exist at many nuclear sites for major component upgrades to 1970s or 1980s vintage GE MCCs.

Value proposition



Equipment Modernization

Update 1970s MCCs with new units: Feeders, FVNR, FVR, 2S1W, 2S2W, etc.



Life Extension

Entire lineups can be upgraded with new units of the same fit, form, and function, preserving the existing NRC license for the site.



Easy to Install

New units rack in just like the originals. No need to replace cabinetry or pull wiring



Advanced Technology

New units are based on SACE Tmax XT circuit breakers, meeting 2022 UL requirements

Applications

7700, 8000 and Spectra MCCs

Segments/channels

- Utility Sales
- Utility Reps
- End users



8000-Line SACE® Tmax® XT FVNR

[Web Link](#)

Value Proposition



Features - ABB vs Key Competitors



We are leaders

- Compatible with existing lineups
- UL listed
- New doors integrated in bucket
- Latest circuit breaker technology
- Maintaining same fit, form and function



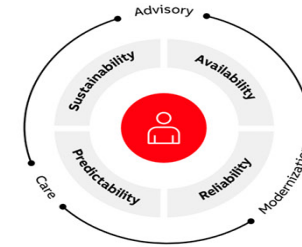
At par

- Retaining MCC structure, conduits, cabling & footprint
- Minimal or no section modifications required
- Eliminating obsolete components

Benefits

- Reduced risk of failures
- Easy to make diagnosis
- Easy to maintain

- No change in licensing requirements
- Spare parts availability
- Less expensive than new gear
- Easy to install



Values

Emotional drivers

- + Sustainability
- + Peace of mind



Revenue drivers

- + Improved uptime
- + Reliability
- + Brand value



Cost drivers

- + Lifespan extension
- + Resuming operation faster in comparison to when installing new gear



Repair Types

Inspection and repairs for existing circuit breakers, trip units, and motors



Planned on-site repair

- ABB technicians visit site during a planned outage time
- The technician will be trained and certified on the respective product and will arrive well-prepared to repair in minimum time



Repair Shops

- Offered in our state-of-the-art service workshops
- Allows technicians to reach a higher range of repair that cannot always be achieved onsite
- Fundamental failures can be more easily detected and removed
- In addition to the repair work, the equipment will be fully tested in our testing facility and returned to the customer with the accompanying documentation



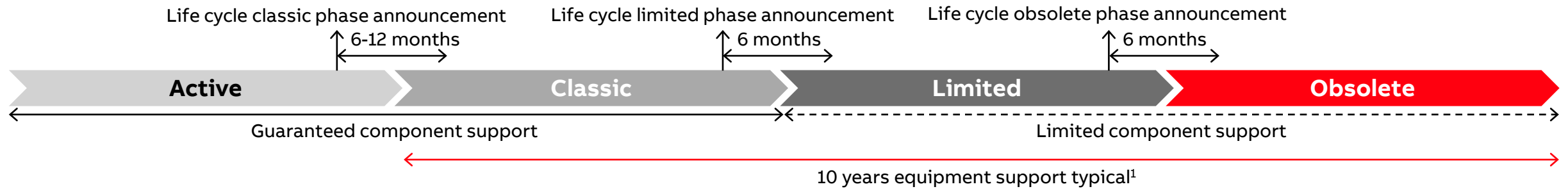
Emergency Repair

- Technicians available 24/7 to support emergencies
- Technicians have the support of the ABB factories to provide necessary parts, drawings, and engineering guidance
- Dramatically reduces unexpected outage times



Life Cycle Phases

Lifecycle Phase Breakdown



Active phase

- Available for sales
- Full manufacturing
- Actively promoted in assigned countries
- Available to all (authorized) customers
- Full technical and customer support available
- Periodically enhanced through R&D and product improvements
- Fulfill availability of a spare parts
- Extended warranty available for application

Classic phase

- Product is still available, but not extensively promoted (a substitution product will be identified with cross-reference in most cases)
- No further enhancements and developments
- Spare parts fully available

Limited phase

- Product is no longer actively promoted by the sales force
- Service support is ensured, including retrofit kits, spare parts and accessories
- Product is no longer manufactured or limited production might be available
- Life extensions may be available under a **Customer Support Agreement**, which provide “Active Phase”- like support from ABB Service team

Obsolete phase

- Product is withdrawn from sales
- No longer manufactured as a complete product
- Retrofits kits, where applicable, are available for most applications
- Spare parts availability may diminish over time with decrease in production volumes

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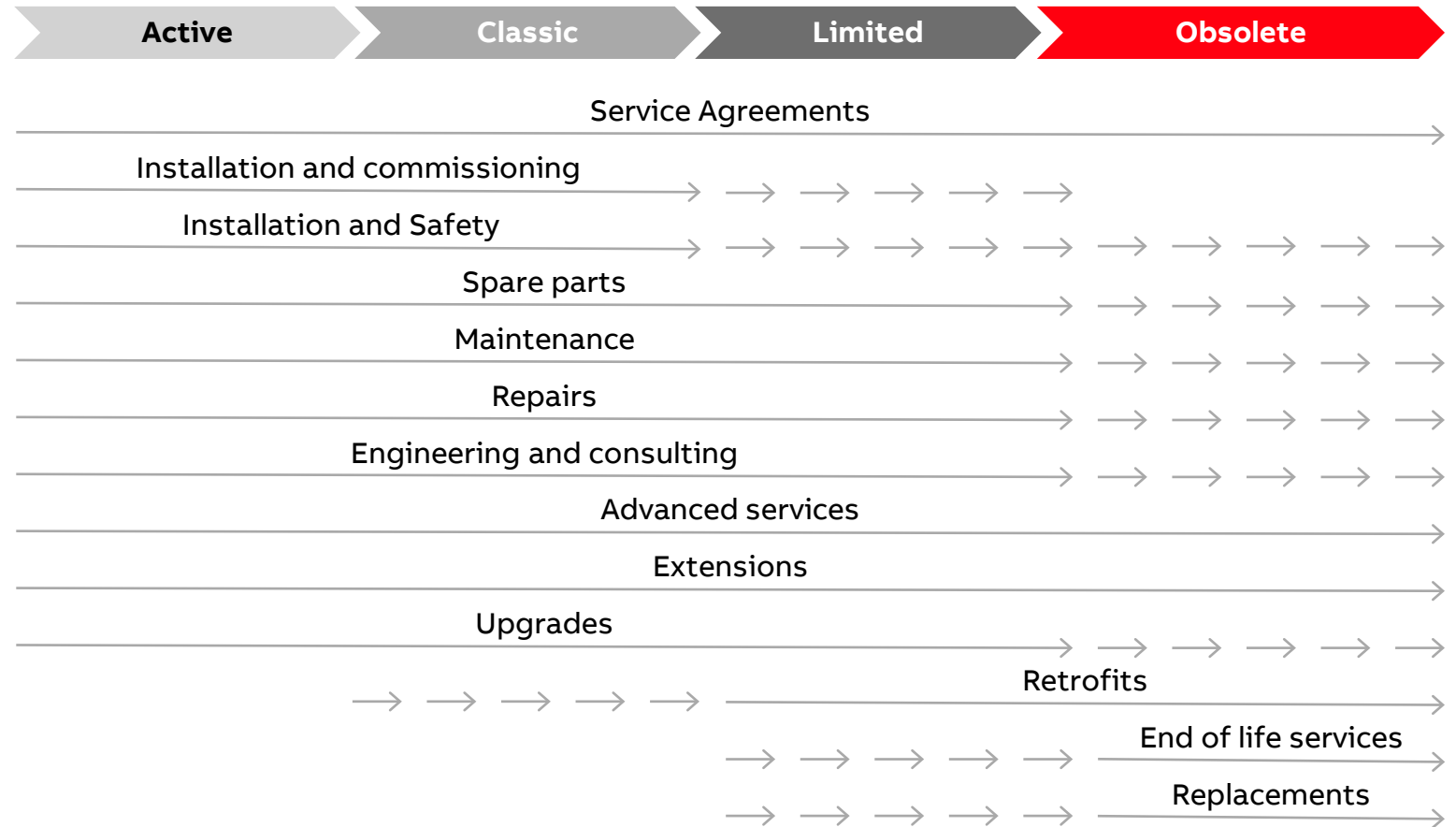
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Service Agreements

Maintaining Equipment

- Equipment reliability will decrease as the equipment ages. If not properly maintained, the risk for an unexpected failure dramatically increases.
- After a long useful life, all electrical equipment will start to show its age. In that case, an upgrade or retrofit can be utilized to further extend the equipment's useful life, as well as increase performance with the latest technology available.
- Regularly maintaining and upgrading equipment will increase overall safety with reduced risk for arc faults, as well as meeting new safety requirements



Supported Products

	Active	Classic	Limited	Obsolete
Status	Product is actively marketed and sold	Product will be replaced but is still available for sales, mainly for spares and expansion projects	Limited manufacturing/s tock availability	Product is no longer available nor sellable
Product available for sales	●	●	Not guaranteed	●
Spares availability	●	●	●	Not guaranteed
Product on stock	●	●	Not guaranteed	●
Available in online tools	●	●	●	●
Maintenance and repair	●	●	●	Not guaranteed

Switchgear		Switchboards	Circuit Breakers		
Low Voltage	Med Voltage	Low Voltage	Low Voltage		Med Voltage Vacuum/Air
ReliaGear LV SG MNS SG AR Entellisys 5.6 Entellisys Max SG K-Line AKD-20 AKD 10, 8, 6, 5 K-Line Plus MB LK	SafeGear Advance SecoGear PowerVac HKII HK MagneBlast	ReliaGear SB PowerBreak II AV3 PowerBreak I	Molded Case Tmax XT Spectra Insulated Case PowerBreak II PowerBreak	Power EMAX2 Entelliguard New EMAX K-Line KDON K-Line Plus EMAX WavePro AKR AK MB LK	AMVAC ADVAC VMAX SecoVac PowerVac VHK VHK-X HK MagneBlast SecoVac R
Motor Control Centers (MCCs)		Outdoor Breakers	Load Interrupter Switches (LIS)		
Low Voltage	Med Voltage	Med Voltage	Med Voltage		
ReliaGear LV MCC MNS MCC AR E9000 8000 Series 7700 Series	LimitAmp SafeGear MCC Advance MCC	R-MAG V Breaker R Breaker	BreakMaster LIS BreakMaster V		

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Equipment Lifecycle Extension Considerations



Evaluate

- **Baseline** equipment – data collection, **asset health** evaluation, **lifecycle** review
- Review **shared database** of condition findings
- Sharing of **continuous improvement** opportunities
- Consider solutions approach based **on site constraints and safety**



Maintain

- Initiate/optimize **proactive maintenance** programs
- Routine
- Condition-based
- Predictive
- **Remote Assistance**



Monitor

- Look at **condition monitoring** solutions
- Support transition from basic monitoring to **predictive**

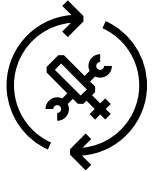


Extend

- Intentional **spare strategy**
- Structured lifecycle extension plan that integrates improved safety and standards compliance

ABB Services & Call Center

+1 888 434 7378 or +1 540 387 8617



General Services

- Local Service and Sales Team Initiated
- Installation, startup and commissioning
- Feasibility/engineering studies
- Assessment/inspection/testing
- Preventative Maintenance
- Outage support
- Repair and product replacement
- Training



Call Center

- Toll Free & Direct Dial Numbers
- 24 x 7 x 365 emergency services and parts
- Calls for equipment under warranty
- Field Engineer or Tech Dispatch
- Time and Material Quotes @ Published rates



Contract Customers

- Toll Free and Direct Dial Numbers
- Assigned a customer profile
- List of equipment covered
- Notes on customer drawings & configuration
- Customer notification email list
- Primary and Secondary Field Engineers contacted to support
- Escalation procedure to local Service and Account Managers as needed
- Contract rates for dispatch

Electrification websites

External, services, & sales support portal

US EL Service webpage

Services Product Line Card

Installation, Commissioning,
and Maintenance

Aftermarket Services

Preventive Maintenance &
Outage Support

Roadshow

Training

ABB Search Company tools Alerts Orders

ELSA | Electrification Sales Authority

Services | ABB

Don't just replace old MV switchgear. Modernize it with the OneFit retrofit design.

Welcome

Click here to learn more

Quick links Explore your products & services Explore your industries

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Electrification Industries

A virtual tour through our industries and products

EXCLUSIVE WEBINAR

The Estimating Process in Four Steps

Presented by: Don Kiper, President of Estimating 101

March 30th 2:00 PM ET REGISTER NOW

Highlights

- Buildings for a Better (ON DEMAND)
- Solar Ready Meter Socket
- ReliaGear™ LV-MCC

ABB

Electrification Services

For safer, smarter and more sustainable solutions

Aftermarket solutions
Extend the life of existing equipment with ABB technology. Low and medium voltage circuit breaker retrofits and retrofills, motor control center bucket replacements, modernization and upgrades, spare parts and more.

Engineering services
Help improve safety and reliability, reduce operating costs and increase productivity with Power Systems and Arc Flash Studies, Startup and Commissioning Services, and Electrical Safety Training.

Emergency services
Recover faster with ABB's comprehensive solutions and experienced technical resources, available 24/7.

LinkedIn ads

ABB US Electrification contact empower

Lifecycle Solutions

Over 130 years of expertise and a global network of repair centers and field engineers to optimize assets, extend lifecycle and increase uptime.

Home > Services

Highlights

- Power Delivery Services
- Arc Flash Services
- Roll-in Replacement Breakers

Did You Know? ABB Services provides support for the nuclear industry

The ELDS US Service Team offers supports these products and services

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