



Innovative switching, control and monitoring solutions for today's power generation challenges

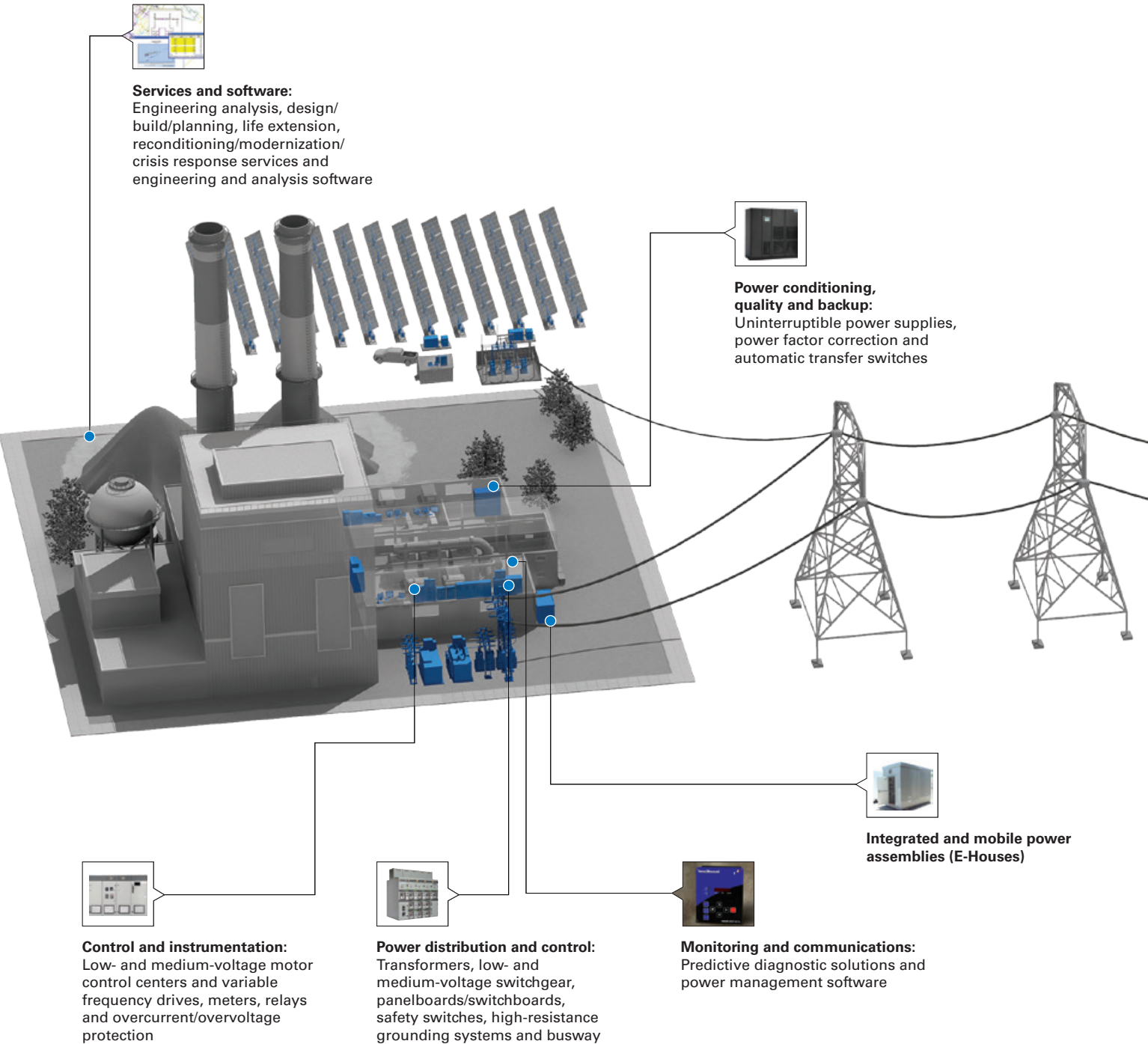
Innovating to enable safe, effective power generation

Eaton's breadth of solutions and services make it an ideal partner to help utilities meet the challenging demands of today's electrical grid—and the next generation of power plants—which will be required to meet the challenges of control, integration and safety. From extending the life of vintage electrical equipment and providing project management services to enhancing the power of your utility staff and integrating smart technology, Eaton is on the forefront of energy innovation.



Powering Business Worldwide

Helping you generate reliable, safe, efficient power in a secure, responsive infrastructure



Power distribution and protection



Integrated power assemblies (E-Houses)

- Turnkey engineered E-Houses
- Coordinated solution of Eaton electrical equipment
- Time-efficient and cost-effective completed installation



VacClad-W medium-voltage switchgear

- Generator- and line-mounted, metal-clad switchgear up to 38 kV
- Up to 4000A continuous current
- Integral motorized remote racking (MR2) for breakers and auxiliary compartments
- Standard and arc-resistant



Low-voltage switchgear

- Generator- and line-mounted, metal-enclosed, low-voltage switchgear to 600V and 10,000A main bus
- Standard and arc-resistant
- High-resistance grounding system integrated or standalone 600V, 5A maximum
- Corner and front access space-saving designs
- MRR 1000 remote racking system for Magnum DS breakers



Arc quenching switchgear

- Reduces incident energy, enhances safety, protects switchgear from arc flash damage and reduces process downtime
- Detects and quenches an arc fault in less than 4 milliseconds
- Tested to ANSI/IEEE C37.20.7, Type 2B test guide in standard NEMA 1 construction
- Available in rear access and front access switchgear configurations
- Available in NEMA 1, NEMA 3R and traditional arc-resistant enclosure types



VCP-W generator breaker

- Meet and exceed the service duty requirements defined by IEEE
- Superior performance and versatility
- Available up to 15 kV 75 kA and 4000A in drawout configurations
- Available up to 15 kV, 75 kA and 6000A in fixed configuration



Power and distribution transformers

- Liquid-filled to 12,000 kVA (ANSI) and dry-type to 10,000 kVA (ANSI)
- Three-phase compact pad-mount and substation
- Custom-designed, coordinated dry-type transformers 112.5-3750 kVA



Automatic transfer switches

- Breaker-based up to 5000A
- Contractor-based up to 3000A
- Bypass isolation for both contractor- and breaker-based solutions
- ANSI/NEMA and IEC certified
- Open or closed transfer
- ANSI/NEAM, UL1008, and IEC Certified



Metal-enclosed interrupter switchgear

- Metal-enclosed switchgear with voltages up to 38 kV
- Up to 1200A continuous current
- Standard and arc-resistant
- Narrow and front-access designs
- Available in fused and non-fused (MVS), enclosed breaker (MEB) and switch over breaker (MSB)



Gas-insulated switchgear

- Switchgear up to 38 kV, single tank design
- Arc resistant classification AFLR (31.5kA for 1 sec)
- Front-accessible



Panelboards and switchboards

- Up to 1200 A
- Widest selection of switchboards in the industry
- Integrated Facility System (IFS) for space-saving integration of standard electrical equipment
- Maximum standardization, safety and convenience



Pow-R-Way III busway

- Continuous track design that enables plug installation along 93 percent of the busway run
- Sections are reusable and can easily be added, removed or repositioned
- Tested to meet all requirements of UL 857 and CSA C22.2 No. 27
- Certified IP2X "finger safe" design
- Available up to 225 A

Motor control and instrumentation



Ampgard medium-voltage motor starters

- Rated 2.4 kV to 13.8 kV
- Standard and arc-resistant
- Ampgard ISO switch remote operator



Medium-voltage variable frequency drives

- 4160V to 12000 HP, up to 6000 HP arc-resistant
- 24-pulse 2.4kV and 4.16kV to 12000 HP, up to 6000 HP arc-resistant



Low-voltage motor control centers

- 600V and below applications up to 3200A
- Comprehensive motor starting capabilities with scalable motor protection
- Seamless integration into all major industrial communications networks
- Industry-leading arc-resistant and FlashGard® arc-flash preventive solutions



Low-voltage variable frequency drives

- 600V to 2000 hp
- 6-pulse 480V and 575V to 2 kV
- Complies with IEEE Std. 519™ 1992, 2014 standard

Automation and monitoring



Meters and relays

- Protective relays for transformer, motor, feeder and generator protection
- Power quality and energy metering



Predictive diagnostics

- InsulGard™ partial discharge monitoring of medium-voltage insulation
- BushingGard continuous testing of high-voltage condensing type transformer bushings
- Dashboard provides a plug-and-play option for standard MTM configurations
- Continuous thermal monitoring of cable connections to switchgear



Motor Protection

- On-board I/O and communications options
- Logic engine for local logic with function block programming
- Ground fault detection available

Safety switches



Safety switches

- Heavy-duty safety switches up to 1200A
- Double door line isolation switches for added safety
- Safer switch designs that include viewing windows, enhanced visible blade, voltage indicators
- OLI line isolation switches for control panels
- Vast custom modification capabilities

Electrical engineering services



Crisis response

- Mobile 18-wheeler base camp with products and service personnel to reduce downtime
- Manufacturing capacity reserved at factory for fast emergency deliveries
- Storm response inventory provided as bundled offering supplied locally



Predictive and preventive maintenance

- Capabilities include transformers, OCBs, SF6 breakers, switchgear, PTs, and CTs
- Transformer and breaker oil analysis
- Partial-discharge testing and analysis
- Maintenance contracts



Power system design and analysis capabilities

- Arc flash studies
- Excitation and regulation systems
- Governor and gate controls
- NERC Compliance reporting
- Coordination, short circuit of fault current studies
- Load flow and power factor studies
- Grounding analysis and grid design
- Transient stability studies



Transformer capabilities

- Bushing monitoring systems
- Oil processing rights
- Internal inspection and supporting work
- Dress out and start up
- On-site repairs
- Power factor dole testing

Reference PA027036EN for complete list of engineering services for generation applications

Life extension / aftermarket and replacement / accessories



Low-voltage motor control center bucket replacements

Direct replacements for all Legacy Eaton, Westinghouse, Cutler-Hammer and Moeller MCCs

Eaton retrofit units for:

- GE, 7700/8000
- Allen-Bradley, Centerline 2100 series
- Siemens/Furnas, series 89
- Square D Models 4, 5 and 6
- FPE, 5325/5320
- Moeller, series 90, 100, 170, 200, 3000 and Modan 3000



Switchgear and circuit breaker upgrade and reconditioning

Medium-voltage vacuum replacement circuit breakers

Over 200 various VR-Series designs

- Westinghouse, GE MagneBlast, Allis-Chalmers, ITE, Federal Pacific Electric & McGraw Edison

New VR-Series+

- 10 years or 10,000 operations between service intervals—no scheduled maintenance
- K>1 and K=1, 41 kA short circuit, 2000A continuous
- Fully IEEE C37.59 & C37.09 tested

VR-Series+ available designs

- Westinghouse (50DH-VR+ and 50DHP-VR+)
- GE (AM4.16VR+ and PowerVac VB/VB1-VR+)
- AC (MA-VR+ and MC-VR+)
- ITE (5HK-VR+, 15HK-VR+ and 15VHK+)
- Federal Pacific (DST-2-15-VR+)



Medium-voltage circuit breaker to motor starter replacements 4.76 kV designs (390A FLA continuous or 720A)

More than 150,000 load switching operations

- Westinghouse (DH & DHP)
- GE (AM4.16 MagneBlast)
- ITE (5HK)
- Allis-Chalmers (MA)
- FPE (DST-2)



Medium-voltage vertical-to-horizontal conversion

GE MagneBlast VHC-Series* conversion

- Reversible—no change to existing switchgear bus
- 10 years or 10,000 operations between service intervals—no scheduled maintenance
- K>1 and K=1, 41 kA short circuit, 2000A continuous
- Utility hardened
- Greater mechanical endurance—more durable components
- Fully IEEE C37.59 & C37.09 tested



Low-voltage air replacement circuit breakers

Complete new replacement—not retrofitted circuit breaker

Uses same cell interfaces with minimum cell modifications

- Westinghouse (DBL and DB)
- ITE (LKD, LK and K-Line)
- GE (AKU, AKR and AK)
- Allis-Chalmers (LAF and LA)
- Federal Pacific (FP and FM)



Low-voltage circuit breaker to motor starter replacements

- Westinghouse (DB, DBL, DS, DSL, DSII and DS416)
- General Electric (AK2, AK2A, AKR and AKRU)
- Federal Pacific (FP25)
- ITE (K600, KDON600 and K1600)



MV and LV switchgear remote power racking device

- RPR2-2 programmable for power circuit breakers using shaft rotation
- Portable and easy-to-maneuver
- Capable of racking numerous manufacturers' models of circuit breakers



Factory Authorized Mechanism Enhancement (FAME)

- FAME Upgrade for existing VCP-W
- Circuit Breakers
- 10 year or 10,000 operation maintenance intervals
- Utility hardened mechanism with enhanced durability
- No contact maintenance
- Greater mechanical endurance—more durable components

To learn more: Eaton.com/utility

MGE OFFICE PROTECTION SYSTEMS
 CEAG MOELLER
 MTL MEM CUTLER-HAMMER
 COOPER PDI ARROW HART
 B-LINE BUSSMANN MTL
 HOLEC ULUSOY
 ARROW HART MEM BUSSMANN
 PDI POWERWARE
 MEM BUSSMANN
 ARROW HART CEAG
 MOELLER MTL POWERWARE
 CEAG INNOVATIVE SWITCHGEAR SOLUTIONS
 MTL B-LINE
 HERNIS
 COOPER
 B-LINE
 ARROW HART
 MOELLER
 CEAG MEM
 MTL
 COOPER
 HERNIS POWERWARE HOLEC
 BUSSMANN MTL ARROW HART
 B-LINE COOPER
 MOELLER CEAG HOLEC MOELLER
 MTL POWERWARE CEAG
 MEM MGE OFFICE PROTECTION SYSTEMS
 HERNIS POWERWARE
 COOPER ULUSOY CROUSE-HINDS
 CEAG ARROW HART COOPER
 PDI MOELLER CROUSE-HINDS
 INNOVATIVE SWITCHGEAR SOLUTIONS

**MORE POSSIBILITIES.
POWERFUL SOLUTIONS.**

Eaton has been serving the power management needs of our customers for more than a century. Over the years, we have expanded our expertise and portfolio of products and services by uniting some of the world's most respected names with Eaton's strong heritage of innovation.

Our goal is simple; to provide unique solutions across a wide range of markets that keep businesses on the leading edge of change. That's the power of One Eaton.

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