Eaton’s Electrical Sector: Targeting focused growth opportunities

Revathi Advaithi – Chief Operating Officer, Electrical Sector
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Electrical Sector growth – today’s themes

• Eaton is well-positioned with electrical solutions for the entire power system
  • Our balanced electrical portfolio serves six key end markets

• Our technology investments are making our devices more intelligent and connected
  • We own the critical electrical real estate to enable the digital future

• We have multiple levers to enhance our future growth
  • Channel and service strength – our extensive channel presence and leading services capability help solve our customers’ toughest challenges
  • Technology leadership – we are expanding our digital platforms and capabilities in order to capitalize on emerging IoT opportunities
  • Delivering superior value – we provide differentiated, value-added products to key end markets
Our seven core platforms deliver solutions for the entire power system

- Structural Solutions and Wiring Devices
- Backup Power Protection
- Solutions for Harsh and Hazardous Environments
- Power Distribution and Circuit Protection
- Engineering Services
- Control and Automation
- Lighting and Security

Industrial
- Facilities
- Machine builders
- Commercial
- Data centers
- Utility
- Residential
The Electrical Sector has two reporting segments:

**Electrical Products**
- Resi & Non-Resi products
- Industrial Controls
- Power Quality (1-Phase)
- Lighting

**Electrical Systems & Services**
- Bussmann series
- B-Line series
- Wiring Devices
- Life Safety
- Power Distribution & Assemblies
- Power Quality (3-Phase)
- Power Systems
- Crouse-Hinds series
- Software & Services

Megatrends:
- Population growth
- Environmental concerns
- Energy efficiency
- Intelligent & connected

Demand for superior value solutions
We have breadth across both geographies and key end markets

**Geographic mix**
- 40% Rest of World
- 60% United States

**End market mix**
- Industrial facilities: 18%
- Machine builders: 11%
- Commercial & Institutional: 32%
- Data Center & IT: 14%
- Utility: 15%
- Residential: 9%

$12.6B 2016 sales
Our product portfolio continues to advance as we invest further in connected and predictive solutions.

Megatrends

Electrical products
- LED lighting fixtures & control products
- Controlled lighting systems
- Connected lighting solutions

Electrical systems & services
- UPS
- Energy Saver System software with NOAA weather interface
- PredictPulse monitoring service
Electrical Sector strategic growth initiatives

- Value-added services
- Contractor programs
- Distributor programs
- Life-extension & modernization services
- Crisis response services
- Intelligent drives
- IoT / Digital platforms
- Connected LED lighting
- Efficient UPS
- Arc-resistant switchgear
- UPS for Data Centers in emerging markets
- E-line contactors for emerging market OEMs
- Global molded-case circuit breakers
- Energy storage systems
Evolving utility landscape provides a continued growth opportunity for Eaton

**Evolving Utility Landscape**

- Added grid complexity to integrate renewables and two-way power flow with distributed generation
- Grid modernization to enable a smart grid and update aging, analog infrastructure
- Affordable clean fuels like natural gas
- Increased environmental and regulatory requirements to significantly reduce carbon emissions

**Macro factors redefining the power generation landscape**
Eaton has a history of expertise serving utilities with a full line of products and services.

**Generation**

- Power distribution, protection & control
  - Transformers
  - Switchgear
  - Recloser control
  - Voltage regulators
  - Capacitors
- Network protectors
- Line installation protective equipment

**Distribution**

- Power distribution, protection & control
- Automation & monitoring
  - Substation automation
  - Demand response
  - Yukon™ feeder automation software
- Advanced metering infrastructure
- CYME™ power engineering software

**Transmission**

- Power distribution, protection & control
  - Protecting infrastructure
- Distribution automation & monitoring services
- Substation automation
- Demand response
- Life extension & modernization services
- Crisis response
FirstEnergy commissioned Eaton’s Services team to convert three coal-fired generators

FirstEnergy’s power plant

104-year-old coal-fired generation plant in Northeast Ohio

Coal-fired generator

Converted three coal-fired generators to synchronous condensers to improve grid stability

Eaton’s Electrical Engineering Services & Systems team

Supplied turnkey project management and equipment with an experienced technical team

$90B estimated U.S. utilities capital spend for 2016 – an all-time high driven by grid modernization and clean energy requirements

Source: Deloitte
Turnkey service projects build lasting relationships that lead to additional pull-through opportunities

Design services
Project management
Construction services
Life extension and modernization services
Start-up/Commissioning

Business outcome:

Eaton’s turnkey engineering service capabilities drive additional hardware sales to utilities
Utilities are embedding Eaton engineers as an extension of their own in-house teams

Growth in utility services orders since 2014
~20%
Eaton manages a complex and multi-layered electrical value chain

Use user preference to create **PULL** through the distribution channel

Partner with intermediaries to **PUSH** product into the market
Contractors are important because they provide a window-to-market and create demand.

Eaton’s challenge:
- Build strong contractor partners
- Increase contractor affinity
- Leverage the entire Eaton portfolio

Sources:
- National Electrical Contractors Association (NECA);
- Electrical Construction & Maintenance (EC&M)
Our Contractor Advantage Program (CAP) addresses key contractor pain points

**Typical challenges electrical contractors face**

1. Visibility to order status
2. Materials not available when needed
3. Employees need more product-specific training

**CONTRACTOR ADVANTAGE PROGRAM**

Helps Eaton become an invaluable partner

- Strategic account relationship with executive sponsorship and single point-of-contact for access to order status and expediting
- Coordinated customer support and project management for rapid issue resolution
- Contractor-specific training on Eaton products and solutions
Early results indicate that the program is a success for both Eaton and the contractors.

Contractors who have embraced the Contractor Advantage Program are showing solid growth and penetration.

- **Captured orders**
  - Lighting: 105% YoY growth
  - Power distribution: 45% YoY growth
  - Total orders: 50% YoY growth

“Joining the Contractor Advantage Program has given us an opportunity to move our relationship with Eaton to a new level. Where we can talk, not just about the business that we share, but about better ways to do things...about ways to improve the business for both of us”.

Mike Jurewicz, COO, Sprig Electric
We are making technology investments for the growing $15.8B global drives market

Variable Frequency Drives (VFD) are used in motor applications that require complex, adjustable speed control like pump and HVAC fan systems.

- **Increasing demand for communication protocols & intelligence**
- **Energy efficiency standards and legislation like the ErP Directive in EMEA and Title 24 in the U.S.**
- **Rapid market shifts from electro-mechanical to solid-state motor control**
- **Control requirements moving from actuation only to real-time monitoring**
- **Industry consolidation between motor & pump suppliers and drive suppliers**

VFDs are 2-3x more efficient in HVAC applications compared to traditional control.

*Source: IHS; Eaton analysis*
Eaton is well positioned to win in this space as the industrial control market shifts to Industry 4.0

**Industry 3.0**
Human-machine interfaces and automation

- **User interface**
- **Logic controllers**
- **Protection**
  (circuit breakers / fuses)
- **Control**
  (motor starters)
- **Motor & load**
  (pumps, fans)

**Industry 4.0**
Networks of connected smart devices

- **User interface**
  (via the cloud)
- **Drives**
  with integrated protection, logic and control
- **Motor & load**
  (pumps, fans)

Industry 4.0 leverages the capabilities of Industry 3.0 by integrating user interfaces via the cloud, drives with integrated protection and control, and motor & load systems which include pumps and fans. Eaton's strategic position in this transition aligns with its strong foundation in human-machine interfaces and automation, ensuring readiness for the new era of Industry 4.0.
Our PowerXL drive delivers industry-leading energy efficiency and savings to end customers.

Typical energy savings of 2-10% over competitive variable frequency drives

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Eaton PowerXL with Active Energy Control</th>
<th>Leading competitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor energy cost running at 50% speed</td>
<td>$720 per day</td>
<td>$920 per day</td>
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Active Energy Control®

Hospital

Estimated annual energy savings if all U.S. hospitals switched to Eaton’s PowerXL drive: $390M

Source: Eaton estimates; American Hospital Association (AHA)
We are expanding our platforms and capabilities to enable a wide-range of IoT opportunities…

Eaton’s IoT infrastructure
- Data analytics and collaboration
- Applications
- Connected to the cloud
- Intelligent devices
- Sensing
…and we are using Eaton’s existing infrastructure to prove the concept for new IoT offerings

**Eaton office buildings**

Integrated sensing
Our LumaWatt Pro connected lighting solutions help us optimize energy usage and improve space utilization

Peachtree City, GA office

**Eaton data centers**

Monitoring and analysis
Use Foreseer® software for real-time monitoring, advanced data trending and analysis throughout critical data center environments

Kentucky data centers

**Eaton plants**

Automated commissioning
Step function improvement in the time it takes to configure and factory test build-to-order electrical systems

Asheville, NC plant

35-50%
Average workspace utilization for a typical office during work hours

$740K
Average total cost per event of a typical data center outage in 2015

50%
Labor productivity improvement with automated commissioning

Sources: GSA; Ponemon Institute; Eaton estimates
IoT opportunity for automated commissioning of switchgear mitigates errors and reduces costs

Traditional commissioning

Sales / Order information

Custom order design

Production & assembly

2

End-to-end data connectivity and streamlined workflow

Production & assembly

2

Factory testing

3

Field commissioning

4

Total time saved: 1-2 days per project

End-to-end data connectivity and streamlined workflow

Total time saved: 3-5 days per project*

*estimate based on projects at switchgear plants in the U.S.
Eaton combines deep application expertise with ownership of the electrical real estate.
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