

Electrical solutions for oil and gas

De-risk by design.



EATON

Powering Business Worldwide

We serve the needs of oil and gas customers around the world—in upstream, midstream and downstream applications.

Eaton is a leading power management company, providing energy efficient solutions that help our customers use electrical, fluid and mechanical power more reliably, efficiently, safely and sustainably.

We provide a breadth of innovative solutions globally that help you build a more sustainable business.

Eaton brings a new dimension of expertise.

We are here to help you master the heavy power needs and safety systems integral to uninterrupted operations in the harshest environments and maximize refining operations.

Our customized, innovative solutions can be retrofitted to extend life cycles, enabling you to meet changing regulatory and processing requirements. And with leading safety products, we provide a unique combination of systems, components and services that ensure you minimize risk and optimize your investment, wherever your business takes you.

Legacy of innovation.

Over the years, our innovative portfolio has grown, including solutions from:

- | | | |
|-----------|----------------|----------------------------|
| Aeroquip® | Crouse-Hinds® | MTL |
| Azonix | Cutler-Hammer® | Synflex® |
| B-Line® | Hernis® | Vickers® |
| Bussmann | Holec® | Westinghouse® ¹ |
| CEAG | MEDC | |

¹ Distribution and control business unit





At Eaton, our ability to optimize performance and increase operational predictability, as well as protect your people and profit, will elevate your business operations.

Optimize performance for lower cost of ownership and reduced complexity

We deliver customized electrical, hydraulic and filtration solutions designed for tougher recovery and changing refining conditions. Our project management for design, retrofitting, construction and maintenance helps optimize your investment, increase energy efficiency and reduce risk.

Increased operational predictability

Our local engineering and service professionals improve uptime and reduce costs. Preventive diagnostics and solutions that improve stability and control increase endurance and provide longer life cycles in harsh environments. Remote monitoring and troubleshooting reduce the need for planned maintenance while optimizing equipment life cycles.

Safety solutions that protect people and profit

Eaton's comprehensive and rugged product offering, including explosion-proof enclosures and arc flash preventive motor control centers, mitigates the risk of personnel injury, downtime and damaged assets. Our solutions for reduced environmental footprint through wastewater reuse eliminate manual change-outs. We offer technology to absorb and dissipate loads to increase stability, as well as customized safety training.

Exploration and drilling in onshore and offshore applications.



Upstream applications

We know that tougher, more remote recovery environments increase costs and risk to people and reputation. Additionally, costs of offshore drilling platforms are heavily influenced by weight. To succeed, you need customized solutions, engineering and design expertise and market-leading innovation.

1 Derrick/mast, drawworks and top drive

LED lighting, beacons, strobes and CCTV, hazardous area communications, hydraulic pumps, filters, drives and hoses, strainers and separators

2 Generation

LV and MV assemblies, MV transformers, modular integrated transportable substation (MITS), generator controls, regulators, arresters and capacitor banks

3 Power/pump station and mud/fuel tank

Beacons, strobes and horns, hazardous area communications, strainers and separators, process and control, metering and relay software, network protectors, power distribution, automatic transfer switches, HMI, motor control, cable glands and fittings and safety grating

4 E-house

LED lighting, cable management, LV and MV assemblies, motor control centers, transformers, metering and relays, automatic transfer switches, panelboards, variable frequency drives and UPS—backup power

5 Operator's house/driller's cabin/control room

LED lighting, hazardous lighting, call-points and strobes, CCTV, hazardous area communications, mass notification system, cable management, panelboards, HMI, plugs and receptacles and UPS—backup power

6 Shaker unit

LED lighting, hydraulic filters, strainers and separators, motor control, enclosures and cable glands

7 Drilling floor

LED lighting, hazardous area communications, hydraulic filters, motors, hoses and cable management, cable glands and fittings, plugs and receptacles and safety grating

8 Perimeter and living quarters

LED lighting, CCTV, hazardous area communications, mass notification system, automatic transfer switches, switchboards, panelboards, disconnects, plugs and receptacles

Industrial

Areas prone to dust, dirt, grime, vibration, harsh use and abuse

Wet locations

Protection from windblown dust and rain, splashing, hose-directed water and external formation of ice

Space constraints

Areas with low ceilings, tight spaces and limited footprint

Class II/zones 21 & 22

Protection for areas where ignitable dust may be present

Vibration

Locations that need products designed to withstand continuous movement and may require maintenance and repair

Class I, Division 1/zone 1

Explosion protection for areas with flammable gases or vapors normally in the atmosphere

Corrosive areas

Protection for areas with corrosive chemicals, atmospheres and water

Class I, Division 2/zone 2

Explosion protection for areas where flammable gases or vapors are not normally present

ATEX certifications

Equipment and protective systems intended for use in potentially explosive atmospheres

Meeting midstream challenges with safety, control and monitoring solutions.



Lighting solutions



Monitoring and communications



Structural solutions



Services



Power distribution and control



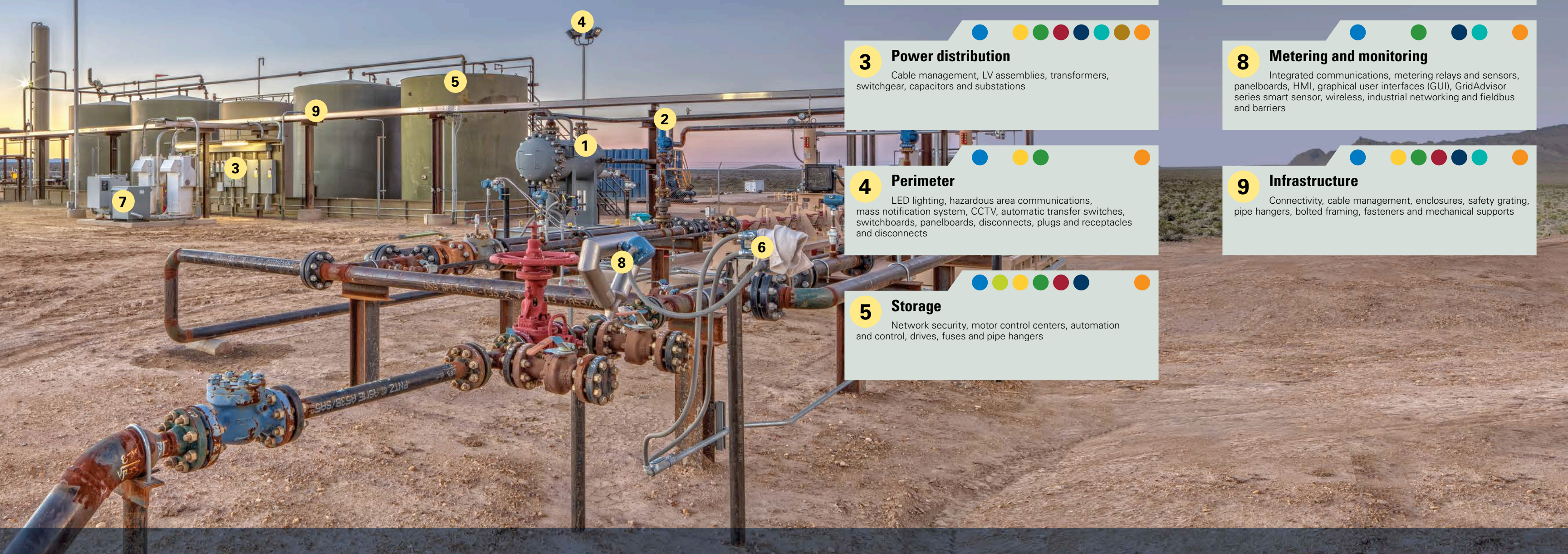
Control and instrumentation



Fittings, couplings and seals



Enclosure solutions



1 Compressor stations (gas)
LED lighting, floodlights, LV and MV assemblies, transformers, disconnects, power control, LV and MV drives, circuit protection, regulators, couplings and filters

2 Pump stations (oil)
LED lighting, floodlights, LV and MV assemblies, motor control centers, regulators, transformers, MV switchgear, automatic transfer switches, process control, control and automation, disconnects, fuses, LV drives, couplings and filters

3 Power distribution
Cable management, LV assemblies, transformers, switchgear, capacitors and substations

4 Perimeter
LED lighting, hazardous area communications, mass notification system, CCTV, automatic transfer switches, switchboards, panelboards, disconnects, plugs and receptacles and disconnects

5 Storage
Network security, motor control centers, automation and control, drives, fuses and pipe hangers

6 Pipeline/transportation
LED lighting, variable frequency drives, motor control centers, heat trace and structural support

7 Transmission lines
LV and MV assemblies, transformers, automatic transfer switches, regulators, capacitors, fuses, mobile substations, overhead distribution equipment, microgrid energy system and software

8 Metering and monitoring
Integrated communications, metering relays and sensors, panelboards, HMI, graphical user interfaces (GUI), GridAdvisor series smart sensor, wireless, industrial networking and fieldbus and barriers

9 Infrastructure
Connectivity, cable management, enclosures, safety grating, pipe hangers, bolted framing, fasteners and mechanical supports

Midstream applications

An increased focus on midstream is fueling the use of ever larger vessels and the need to ensure asset integrity in aging pipelines. Tougher environmental scrutiny applied to pipeline certifications and increasing safety concerns with road and rail distribution call for comprehensive safety, control and monitoring solutions.

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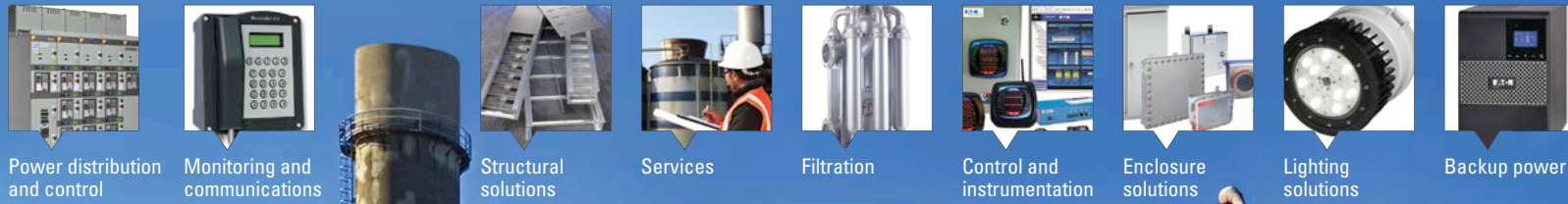
Class I, Division 2/zone 2

Explosion protection for areas where flammable gases or vapors are not normally present

ATEX certifications

Equipment and protective systems intended for use in potentially explosive atmospheres

Retrofitting and new construction to meet changing refining needs.



1 Infrastructure
Connectors and quick disconnect couplings, sealings and fittings, cable ladders, strut systems and safety lowering poles, wireways and mechanical supports, pipe hangers, bolted framing, safety grating and seismic bracing

2 Utilities and offsite
LED lighting, transformers, LV and MV switchgear, automation and control, substations, regulators, capacitors and surge protection devices

3 Distillation units
LED, fluorescent and emergency lighting, general communications system, hazardous display, safety systems, hosing, bushings, filters and monitoring devices, couplings, metering, automation and control, variable frequency drives and software, enclosures, sealings and fittings, relays and software, visualization and display, automatic transfer switches, switchboards, CAT/ISO, circuit protection, surge protection devices, cable glands and strut systems

4 Heat exchanger
Transfer switches, beacons and sounders, emergency signaling, automation and control, pushbuttons, soft starters, power distribution, variable frequency drives, cable glands and disconnects

5 Sulfur recovery unit
LED lighting, safety lighting lowering poles, beacons and sounders, emergency signaling, visualization and display, filters, metering, motor control centers, relays and software, network protectors, power distribution and control, variable frequency drives, pushbuttons and surge protection devices

6 Hydrocracker
LED lighting, safety lighting lowering poles, emergency and condition signaling, emergency visualization and display, general communications system, hosing, filters and monitoring devices, metering, relays and software, starters and switches, network protectors, power distribution, regulators and surge protection devices

7 Hydrotreater
LED and emergency lighting, condition signaling, general and emergency communications, hosing, cable glands, connectors and quick disconnect couplings, network protectors, switches, switchgear, automatic transfer switches, panelboards, voltage regulators, explosion-proof and hazardous area panelboards

8 Hydrogen unit
LED lighting, safety lighting lowering poles, beacons and sounders, emergency signaling, visualization and display, metering, relays and software, network protectors, motor control centers, power distribution and control, pushbuttons, variable frequency drives, surge protection devices, vacuum interrupters and filters

9 Blending and storage
LED and emergency lighting, floodlights, emergency signaling, hosing, motor control centers, switchgear, CAT/ISO, power correction, automation and control, visualization, network protectors, power distribution, automatic transfer switches, displays, I/O modules, variable frequency drives, circuit protection, surge protection devices, enclosures, cable glands, plugs and sockets, wiring, power supplies, diagnostic tools, cable ladders and customer manufacturing service center

Downstream applications

Whether you want to upgrade an aging refinery to process new crudes, decrease downtime, meet increased regulatory requirements or bring a new refinery online, you need advanced solutions that address your power management challenges.

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Powering industry through education.



Services and systems

Eaton's service team is one of the largest and most experienced teams of power and energy engineers in the industry, with industry-standard software, advanced modeling and analysis capabilities, professional engineers, certified energy managers (CEM) and accredited professionals in commissioning located around the globe. Our comprehensive portfolio of services helps keep your buildings and power systems efficient, reliable, safe and up to date.

We offer:

- Field services
- Project management
- Global and regional manufacturing capabilities
- Startup and commissioning
- Customized training per application
- Maintenance
- Lighting layouts
- Turnkey capabilities
- Training
- Power system studies
- Power quality and reliability studies



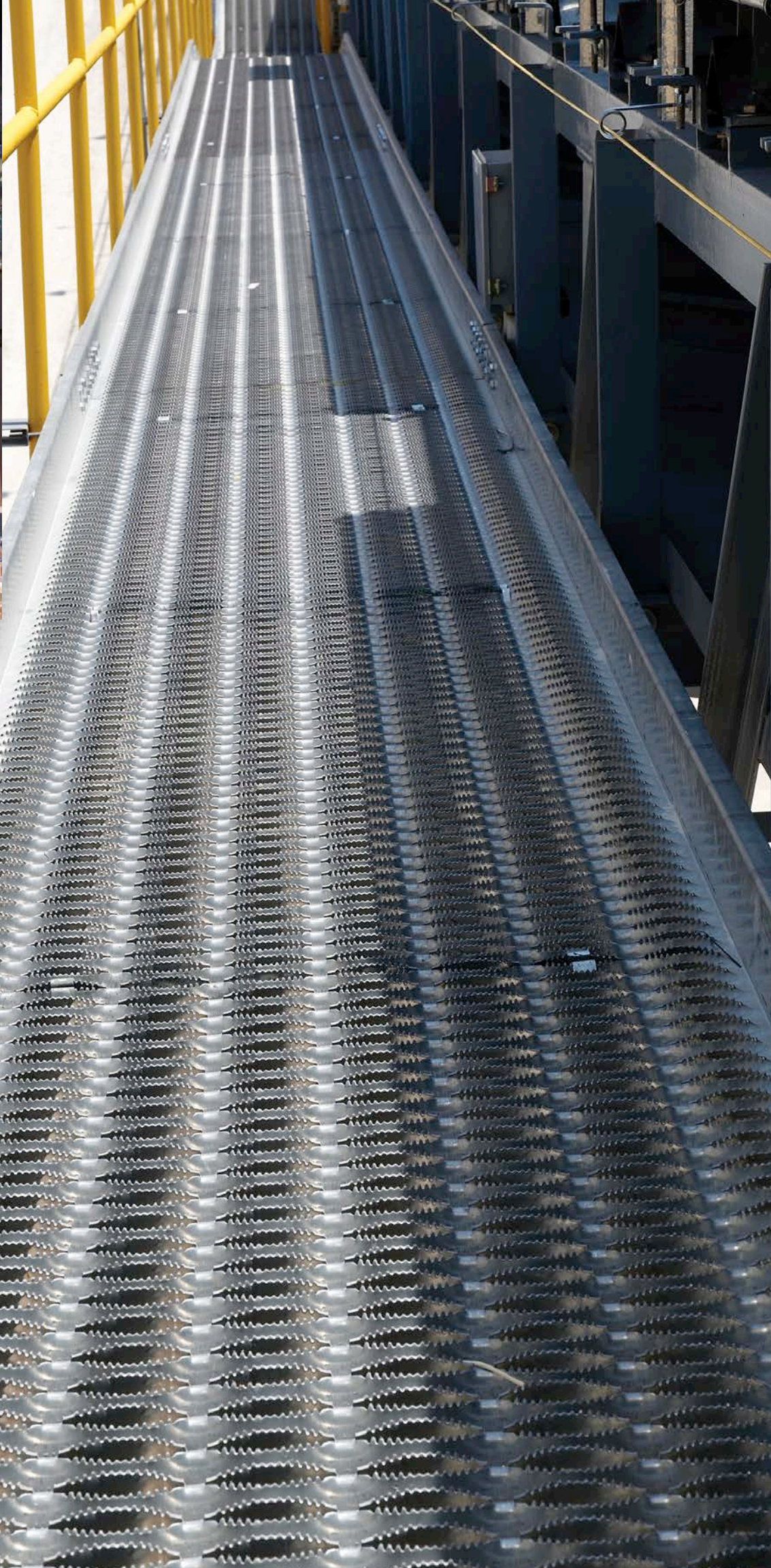
World-class hands-on training

The 55,000 sq-ft Houston Experience Center includes everything from a mock petrochemical refinery to a substation and power distribution grid. Explore multiple training rooms and live application installations that are all designed to facilitate industry-specific education and hands-on demonstrations of Eaton's entire line of electrical products and solutions.

Interactive hands-on applications available to you:

- Petrochemical refinery
- Upstream—offshore rig
- Land-based drilling
- Data center
- Utility and power distribution
- Power quality lab
- Motor control room





Taking the next step.

From custom-designed energy audits, to advanced technology to enhance your designs, to cost benefit analyses on product upgrades, we're ready to help drive your operations **efficiently, safely** and **profitably**.



Discover how Eaton can solve your power management challenges.

Bringing your business a new dimension of expertise, customized innovative solutions and uninterrupted operations in the harshest, most hazardous environments.

Eaton.com/OilandGas



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