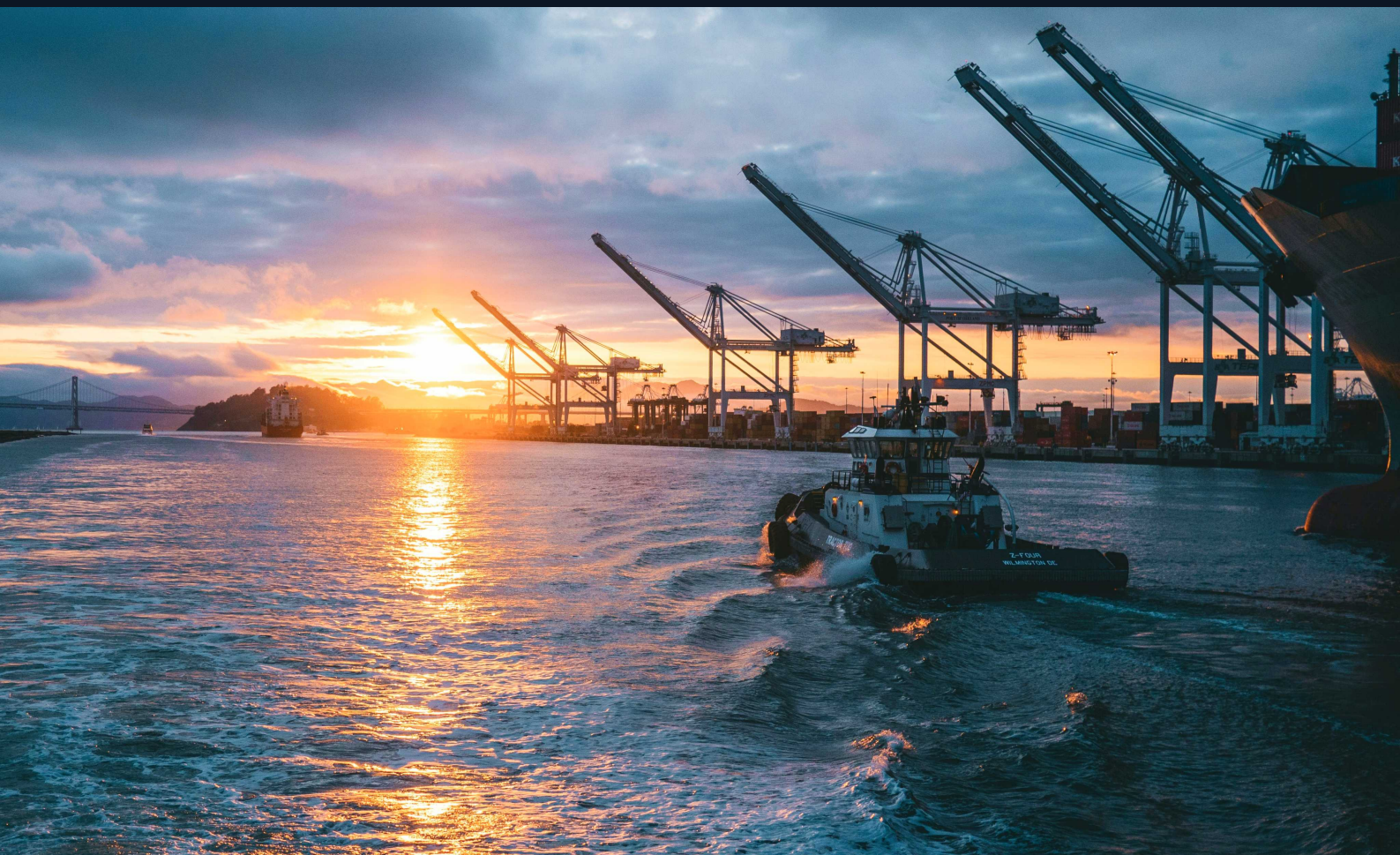


Securing High-Reliability Power Distribution Assets for Heavy Industrial and Extraction Plants

Eliminating Costly Down-Time and Managing Severe Procurement Bottlenecks through System-Level Fault Containment and Vertically Integrated Manufacturing



01

Introduction: The Harsh Realities of Heavy Industrial Operations



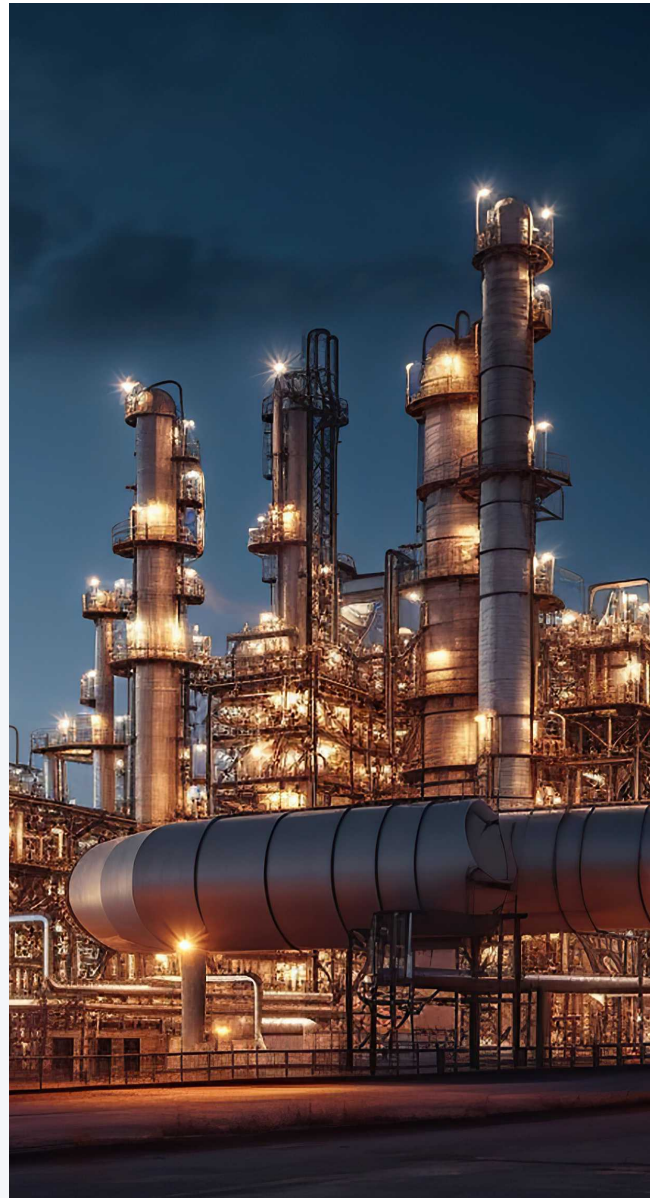
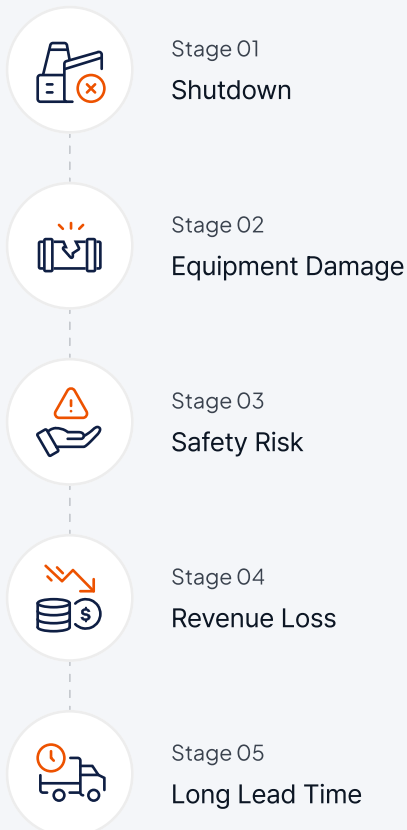
Power distribution infrastructure within the Oil & Gas (refineries, petrochemical plants, LNG terminals) and Mining sectors must operate reliably under some of the most punishing environmental conditions on Earth. These facilities are continuously subjected to extreme ambient temperatures, high concentrations of abrasive conductive dust, corrosive chemical vapors, and heavy mechanical vibration. In these continuous-process industries, power reliability is not merely an operational goal—it is a critical prerequisite for safety and financial survival.

Q

What are the financial and operational consequences of an unscheduled shutdown in continuous-process industries?

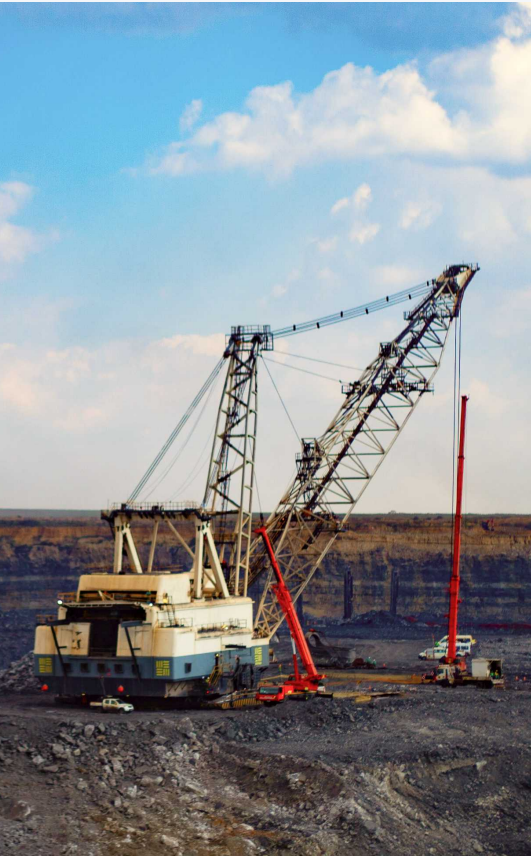
Unlike standard commercial buildings, an unscheduled power disruption or equipment failure at a refinery or automated mining site triggers an immediate, cascading shutdown of continuous production lines. A single hour of downtime can easily result in millions of dollars in lost production, extensive equipment damage due to material solidification, and severe safety hazards for field personnel. Compounding this risk, the current global crunch on electrical infrastructure has pushed lead times for replacement medium-voltage and low-voltage switchgear to 60 to 80 weeks, making proactive asset resilience mandatory.

The True Cost of an Unplanned Shutdown



02

Mitigating Cascading Failures via System-Level Design



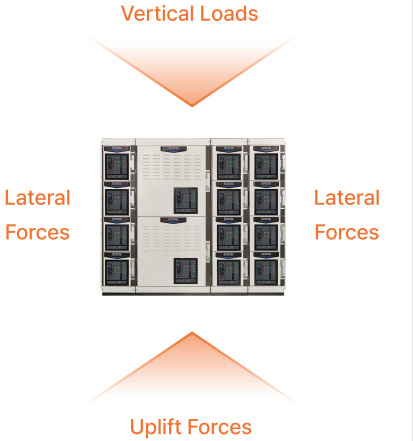
Within heavy industrial power grids, high-power motor startups and harsh operating environments create a constant risk of short circuits and catastrophic internal arc faults. Traditional power distribution equipment is often engineered at the individual component level, which can allow an isolated fault to breach its enclosure and spread laterally. To maintain maximum operational uptime, heavy industrial operators require a comprehensive, system-level design approach that physically isolates hazards and ensures strict continuity of service.

Q

What specific technical standards must electrical equipment meet to guarantee safety and physical integrity in high-vibration and hazardous zones?

Electrical infrastructure deployed in these sectors must feature robust mechanical reinforcement and strict structural compliance. LS ELECTRIC answers this demand by engineering all its heavy-duty power distribution assets, including low-voltage and medium-voltage switchboards, to fully satisfy ASCE/SEI 7 structural standards for seismic and mechanical vibration performance. Validating structural integrity under severe simulated stress guarantees that the equipment withstands continuous micro-vibrations from heavy crushers and high-throughput pumps.

Built for Structural Reliability

01 Harsh Operating Environment	02 Engineered to Withstand	03 Structural Reliability
Mechanical Vibration Constant micro-vibrations from heavy machinery Seismic Loads Seismic events and dynamic forces impact electrical infrastructure	Vertical Loads  Lateral Forces Lateral Forces Uplift Forces	ASCE / SEI 7 Compliance Designed and tested to meet ASCE/SEI 7 seismic and vibration requirements Reinforced Structure Robust enclosure and internal reinforcement for superior mechanical strength Validated Performance Rigorous testing under simulated seismic and vibration conditions ensures long-term reliability

Benefits of LS ELECTRIC America's System

 Ensures Operational Continuity	 Reduces Downtime and Repair Costs	 Extends Asset Lifecycle
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03

LS ELECTRIC's High-Reliability Industrial Solutions



LS ELECTRIC addresses the core safety challenges of heavy industrial environments by deploying advanced internal arc resistant switchgear engineered to contain catastrophic thermal events locally. In the rare event of an internal short circuit, the specialized enclosure channels high-pressure explosive gases away from operators and adjacent equipment compartments. This system-level containment ensures that the fault remains strictly isolated within a single modular section, preventing cascading failures across the wider plant network and allowing unaffected processing lines to continue operating without interruption. In addition to advanced safety features, industrial developers require absolute certainty that their electrical infrastructure will be delivered on schedule to avoid costly commissioning delays. LS ELECTRIC leverages its massive automated production base and unified supply chain to guarantee strict schedule integrity, even during periods of intense market volatility.

Q

Can a manufacturer maintain reliable delivery schedules when global logistics and raw material markets are severely disrupted?

LS ELECTRIC has definitively proven its capability to execute under extreme market stress. During the peak global supply chain disruptions of 2022, LS ELECTRIC successfully manufactured and delivered over 1,500 sections of ANSI/IEEE low-voltage switchgear and 300 sets of high-performance cast coil transformers to mega-scale industrial facilities completely on schedule. This execution is made possible because the company directly owns and operates its highly automated core breaker assembly lines in Cheongju, South Korea, ensuring that the critical internal mechanisms of its switchboards are entirely insulated from external vendor backlogs.

ANSI/IEEE Low-Voltage Gear

On-Schedule Amid Supply Crisis

1,500+ Sections

Cast Coil Transformers

On-Schedule Amid Supply Crisis

300+ Sets

Power Testing & Technology
(PT&T) Center

Reduce Testing & Certification Timelines

Up to 6–8 Weeks



04

Industrial Power Infrastructure Portfolio and Localized Support



Industrial Domain	LS ELECTRIC Technical Specification	Operational Value Product
Hazardous & High-Dust Zones	Internal Arc Resistant Switchgear, Sealed Cast Coil Transformers	Prevents dust ingress, eliminates oil-leak fire risks, and ensures high containment of internal faults.
High-Load Processing Units	UL 891/489 Certified DC and AC Switchboards, Heavy-Duty Circuit Breakers	Built to withstand continuous high-current draws and severe motor-starting thermal shocks.
Predictive Asset Management & DX Connectivity	Integrated DX Condition Monitoring, Real-time Thermal Tracking, SCADA	Enables maintenance teams to detect insulation degradation and micro-arcs before a failure occurs.



24/7 Field Service and Lifecycle Security via the Bastrop Tech Hub

Recognizing that heavy industrial and extraction sites are frequently located in remote or geologically challenging environments, LS ELECTRIC provides a comprehensive field support network centered around its North American Technology Campus in Bastrop, Texas. Supported by major parts distribution hubs in Los Angeles and Chicago, LS ELECTRIC maintains a dedicated 24/7 technical hotline and a rapid-response network of field service engineers. For fast-track expansions, LS ELECTRIC utilizes an optimized logistics strategy where core chassis are loose-shipped from automated factories and finalized via on-site semi-assembly by certified local technicians, providing industrial operators with an unmatched combination of rapid deployment and long-term asset security.