

Electrified Heavy Equipment

5 Risk Areas Terminal & Industrial Operators Cannot Overlook

Ports. Terminals. Logistics Yards. Industrial Fleets.

Electrification is accelerating across heavy-duty environments.

Electric forklifts, yard tractors, reach stackers, terminal tractors, hybrid platforms, and other electrified equipment now operate in high-demand environments where uptime and safety incidents carry real operational consequences.

Electrification is not simply a fuel transition. It changes the operational risk profile.

This guide outlines five risk areas industrial and terminal leaders should evaluate as electrified heavy equipment becomes part of daily operations.



Risk Areas 1-2

1 The Stored Energy Profile is Different

Electrified heavy equipment introduces:

- High-voltage systems with significant risk of electrical shock
- Lithium battery systems with thermal runaway potential
- Different fault behaviors than traditional diesel and gas equipment

In dense terminal environments, an isolated failure can escalate quickly if teams are not trained to recognize system-specific hazards.

Operational Question:

Are technicians formally qualified to work around energized high-voltage systems, or are they relying on traditional mechanical experience?

2 Technician Misclassification Is Common

Many industrial teams assume:

“If they work on diesel equipment, they can work on electric.”

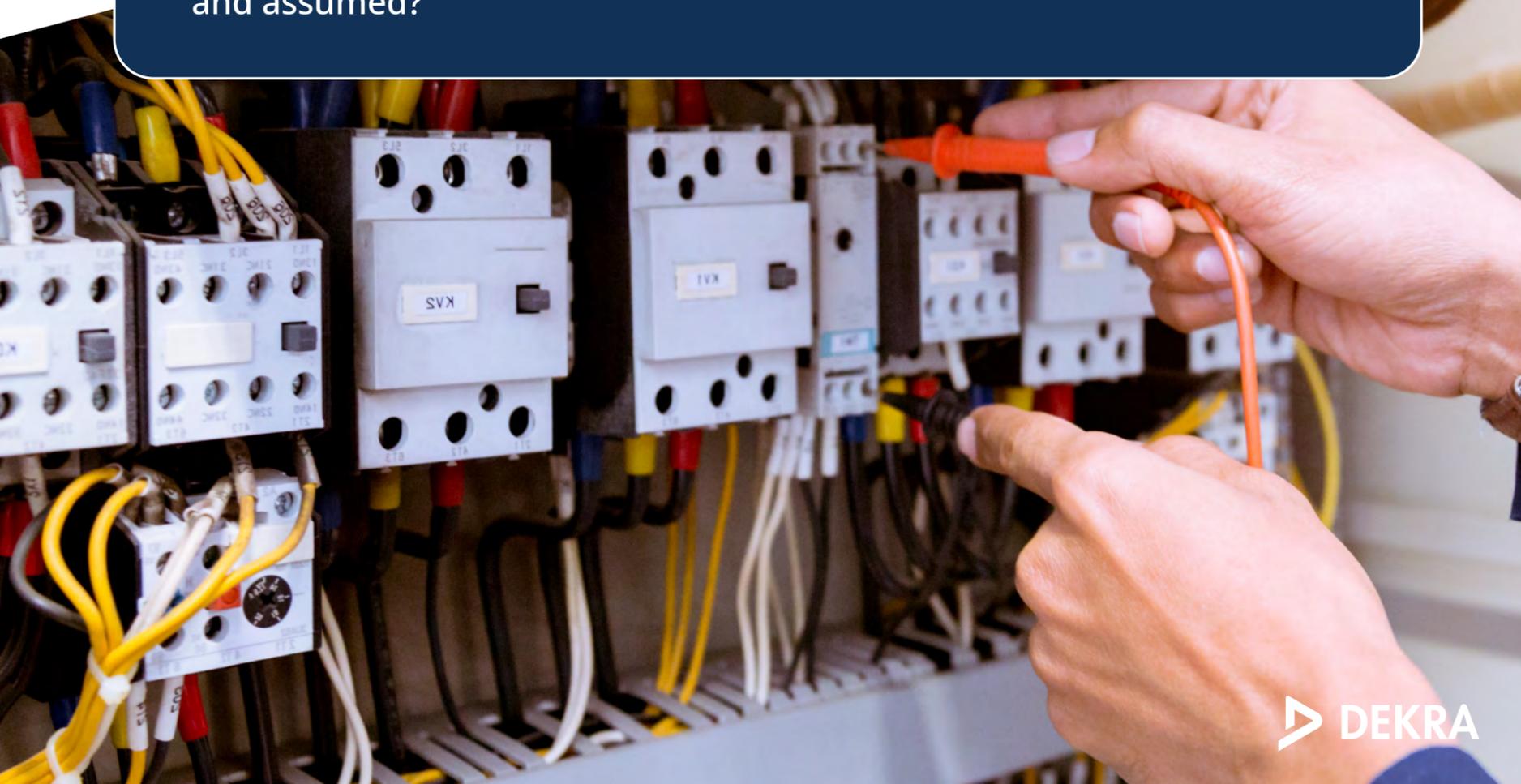
Electrified heavy equipment requires structured qualification aligned to:

- High-voltage identification
- De-energizing procedures
- Electrified lockout/tagout controls
- Creating an electrically safe work condition

Without documented qualification pathways, organizations expose themselves to regulatory and liability risk.

Operational Question:

Is high-voltage qualification documented and role-specific, or informal and assumed?



Risk Areas 3-4

▶ 3 Mixed Workforce & Contractor Exposure

Ports and logistics environments often involve:

- Internal technicians
- Third-party contractors
- Temporary labor
- Vendor service teams

If qualification standards are not aligned and verified across all parties, exposure increases.

Operational Question:

Who verifies high-voltage competency before work begins?

▶ 4 Emergency Response Gaps

Heavy equipment electrification requires updated emergency planning.

Teams should understand:

- Lithium battery fire behavior
- Isolation procedures
- Quarantine protocols for damaged battery systems
- Coordination with local responders

Operational Question:

Would supervisors know how to respond if a lithium battery incident occurred during a shift?



Risk Area 5

5 Electrification Without Structured Safety Alignment

Electrification is often implemented to meet sustainability goals or modernization initiatives.

However, safety training programs are frequently:

- Generic
- Focused on light-duty vehicles
- Not aligned to specific equipment platforms
- Not integrated with workforce roles

Electrified heavy equipment environments require structured training aligned with:

- Actual equipment types
- Operating environment
- Workforce responsibilities
- Maintenance procedures

Operational Readiness Is a Leadership Decision

Electrifying heavy equipment changes technician qualification, supervision, and operational accountability. If electrified assets are already operating or expanding, your safety framework should scale with them.

Electrified Equipment Readiness Review

DEKRA conducts structured reviews of workforce qualification, high-voltage procedures, and equipment-specific training alignment for industrial and terminal fleets.

The review helps organizations understand how technician qualification, procedures, and supervision align with electrified equipment operations.



Start Your
Readiness Review



DEKRA has supported organizations in managing safety and operational risk for more than 100 years. Our EV Safety Training programs help fleets and industrial operations prepare their workforce for electrification through structured, role-based training aligned to high-voltage systems, battery hazards, and real-world operating conditions.

Learn more at: <https://www.dekra.us/en/training/electric-vehicle-safety-training/>