

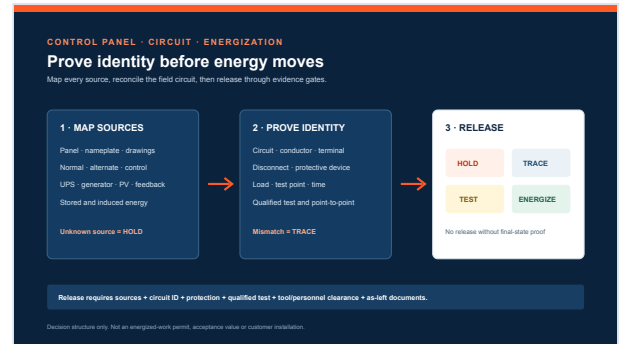
EN-GUIDE-02 · CONTROL PANEL EVIDENCE

Control Panel Circuit Identity & Pre-Energization Verification

A label, drawing, open disconnect or dark indicator does not by itself prove circuit identity or an electrically safe condition. Map every source, reconcile the field circuit, verify with an approved method and release through final-state evidence.

Reviewed: 23 July 2026 · System: industrial control panel

Output: energization release record



Explanatory decision diagram, not a customer installation, work permit or universal acceptance criterion.

DECISION SUMMARY

Do not let a label or open handle substitute for a proven electrical boundary.

Identity, isolation and energization are separate decisions.

Preserve the panel nameplate, approved drawings, every normal and alternate source, conductor and terminal IDs, protection data, test method and final-state approval in one record. Indicators can support the record, but they do not replace the applicable qualified-person test and energy-control procedure.

OBSERVABLE SYMPTOMS

Conditions that require circuit identity to be reopened

- ☒ A breaker or fuse label does not match the load that actually stops.
- ☒ An open main leaves control power, UPS, generator, PV, shared-neutral or feedback voltage present.
- ☒ The installed circuit differs from the latest available drawing or circuit schedule.
- ☒ A conductor has no durable identity at one or both termination points.
- ☒ A replaced protective device does not match the approved type, rating, setting or combination.
- ☒ Panel SCCR or another nameplate rating has not been compared with the installation condition.

STOP-WORK CONDITIONS

Hold when any source, identity, rating or safe-test condition is open.

Source unknown A supply, backfeed path, stored energy or affected load cannot be identified.	Documents disagree Field wiring, circuit labels and approved drawings disagree on the affected boundary.	Rating unproven Panel, component, conductor or protective-device ratings cannot be verified.
Test boundary unsafe The required qualification, work practice, PPE,	Verification incomplete All exposed parts and possible feedback or	Release incomplete Tools, jumpers, grounds, interlocks, personnel

instrument rating or permit is missing.

induced sources cannot be covered.

clearance, stop or rollback are not accounted for.

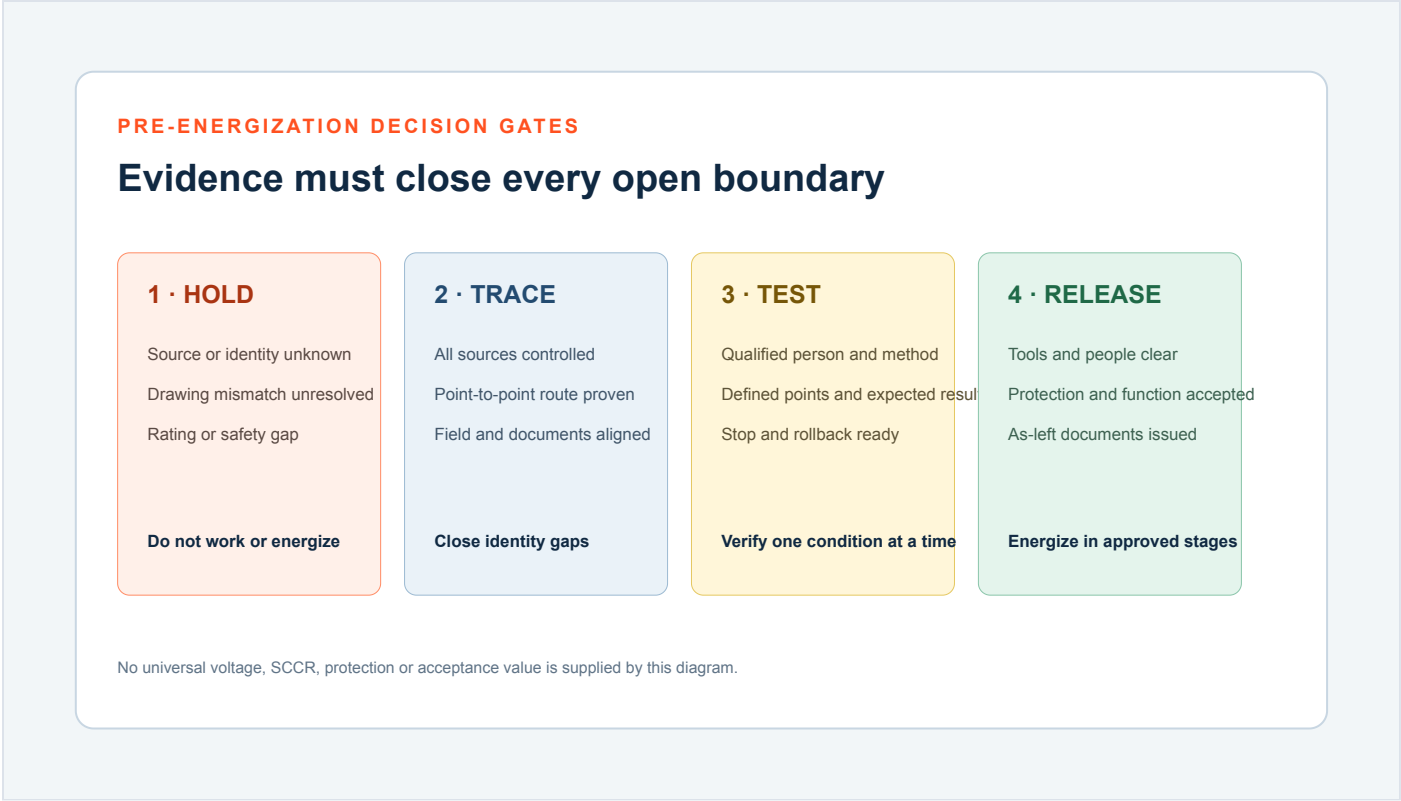
DATA TO COLLECT

Build a circuit record that links the nameplate to the actual load.

Evidence group	Minimum record	Decision supported
Panel identity	Facility, line, panel ID, manufacturer, model, location and equipment served	Confirms the physical assembly under review.
Nameplate and rating	Rated voltage/current, SCCR, enclosure/type rating and certification marking	Frames the installation and fault-duty review.
Approved documents	Single-line, schematic, wiring diagram, circuit schedule and revision	Defines the intended circuit and authorized baseline.
Energy sources	Normal, alternate, control, UPS, generator, PV, regenerative, feedback, induced and stored energy	Prevents an incomplete isolation boundary.
Field identity	Feeder, branch, cable, conductor, terminal, disconnect and load IDs	Links each device and termination point-to-point.
Protection	Device manufacturer, type, frame/rating, setting and approved combination	Supports protection, coordination and SCCR review.
Test record	Instrument model/rating/check, test points, condition, time, result and qualified person	Shows what was actually verified and under which condition.
Work control	Permit, LOTO, stop limit, rollback, warning, personnel clearance and release authority	Connects evidence to authorization and final state.

DECISION GATES

Close every open boundary before energization advances.



The gates show evidence relationships. They do not provide universal voltage, SCCR, protection or acceptance values.

Gate	Required evidence	Result
Hold	A source, identity, rating, drawing or safety boundary is unknown.	Do not work or energize.
Trace	Sources are controlled and a point-to-point route is available.	Reconcile the field circuit with documents.
Controlled test	Qualified person, suitable instrument, approved points, stop and rollback are defined.	Verify one condition at a time.
Release	Inspection, electrical and functional evidence, personnel clearance and as-left package are accepted.	Energize in the approved sequence and monitor.

SIX-STEP PROCEDURE

Move from physical identity to an authorized final state.

01	Fix the equipment and authority boundary. Identify the panel, connected equipment, process consequence, jurisdiction, permit and release authority.	02	Preserve the as-found state. Photograph nameplates, labels, devices, terminals and wiring; secure the current approved drawing and mark discrepancies.
03	Map and control every energy source. Record normal and alternate supplies, stored energy, feedback and induced paths; apply the site energy-control procedure.	04	Verify identity and electrical condition. A qualified person uses suitable test equipment and approved methods at defined points; indicators are supplementary only.
05	Reconcile circuit and protection evidence. Trace point-to-point identity, load, conductor, overcurrent protection, settings, panel rating and installation condition.	06	Release through staged energization. Account for tools, jumpers, grounds and people; warn affected personnel, energize by the approved sequence and issue the as-left package.

EXPERT REVIEW

Questions for the responsible electrical engineer

- ☒ Have all normal, alternate, control and externally supplied sources been mapped?
- ☒ Does the panel and protective-device rating suit the actual installation and available fault condition?
- ☒ Do circuit, conductor, terminal and load IDs agree at both ends and with the approved drawing?
- ☒ Is the test instrument suitable for the circuit and checked as required by the applicable procedure?
- ☒ Does the release test include protection, controls, interlocks, communications, process and rollback?

HANDOVER PACKAGE

Leave the next qualified person a traceable as-left circuit.

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|---|--|
| ☒ As-found and as-left panel photographs and nameplate record | ☒ Protection type, rating, setting and coordination/SCCR review record |
| ☒ Approved single-line, schematic, wiring diagram and schedule revision | ☒ Instrument, test points, conditions, results, failures and reviewer |
| ☒ Source and isolation map including alternate and feedback paths | ☒ Energization sequence, functional results, rollback and final state |
| ☒ Circuit, conductor, terminal and load cross-reference | ☒ Temporary measures, discrepancies, owner, due date and next review |

Circuit marking, energy control, panel scope and installation limits

1. OSHA – 29 CFR 1910.303, General Electrical Requirements
2. OSHA – 29 CFR 1910.333, Selection and Use of Work Practices
3. UL Solutions – Industrial Control Panels and Panel Shop Program
4. UL Solutions – Determining SCCR for Machinery
5. Schneider Electric – Electrical Installation Guide

Jurisdiction and application boundary

The cited OSHA rules are United States requirements. UL 508A certification and panel-shop scope apply to the stated U.S./Canadian program. IEC-based guidance depends on national adoption and the installation. Confirm the country, authority having jurisdiction, site procedures, OEM instructions, available fault current, equipment ratings, permit, competence and responsible engineer's approval.