
Power Systems Literacy for Non-Technical Managers: Generation, Grid and Tariffs Training Course

18 – 22 October 2027
Tokyo





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Ref: 295_20508 Date: 18 – 22 October 2027 Location: Tokyo Fees: 6900 GBP

Programme Summary

Power systems literacy is the subject of this five-day training course for finance, commercial and operations managers without an electrical background, ending in a power supply briefing pack for one organisation. Decisions on contracts, projects and budgets increasingly depend on how electricity is generated, delivered and priced, yet many managers rely on specialists to interpret it. The approach moves from basic electrical concepts, through generation and the grid, to tariffs and supply risk, and then to a worked briefing pack. Mars Training Centre UK delivers this programme in power systems literacy.

The Business Case

Electricity is a cost, a risk and a constraint on growth. Managers who cannot read a supply diagram, a load profile or a tariff structure approve projects and contracts on trust, and find problems only when bills rise or supply fails.

- Energy Cost Variance: Narrows as load profiles and tariff terms are read before contracts are agreed.
- Supply Interruption Exposure: Reduces as supply arrangements and single points of failure are identified early.
- Decision Cycle Time: Shortens as managers and engineers discuss options in shared terms.

Principles and Evidence Base

- IEC 60038: Its standard voltages give a common reference for the supply levels discussed in Session 2.
- ISO 50001: Its energy management system requirements shape the demand and cost review in Session 4.
- Load Duration Curve: It shows how demand is spread over time and is applied in Session 1 and Session 3.
- Merit Order Dispatch: It explains which generation is used first and why prices move, applied in Session 3.

Intended Participants

- Finance managers who budget for energy and approve power-related investment.
- Commercial managers who negotiate supply, connection or power purchase terms.
- Operations managers who depend on continuous supply for production or services.
- Project and procurement managers who sponsor electrical works without an electrical background.

The programme serves industrial manufacturing, real estate, healthcare, mining and public-sector organisations.



Learning Outcomes

1. Participants will be able to explain voltage, current, power and energy in terms of their cost and operating effect.
2. Participants will be able to trace electricity from generation through transmission and distribution to a site.
3. Participants will be able to evaluate a load profile for peaks, base load and savings options.
4. Participants will be able to diagnose the main causes of outages and poor power quality.
5. Participants will be able to compare tariff structures and their effect on cost.
6. Participants will be able to justify a supply decision to a board using a power supply briefing pack.

Programme Structure

Day 1: Power Systems Literacy Foundations

What do the core electrical quantities mean for cost and operations?

- Voltage, Current, Power and Energy Primer
- Single-Line Diagram Reading Guide
- Load Duration Curve
- Demand and Base Load Profile
- Plain-Language Glossary of Supply Terms

Day 2: Generation, Transmission and Distribution

How does electricity travel from the power station to a site?

- Generation Mix and Plant Roles
- Transmission and Distribution Network Map
- IEC 60038 Standard Voltage Levels
- Substation and Transformer Roles
- Network Loss Sources

Day 3: Grid Balance and Supply Risk

What keeps supply and demand in balance, and what happens when it fails?

- Merit Order Dispatch
- Frequency and Reserve Basics
- Outage Cause Tree
- Power Quality Event Catalogue
- Backup and Resilience Options



Day 4: Tariffs, Contracts and Energy Cost

How is electricity priced, and how can a site influence its bill?

- Tariff Component Breakdown
- Maximum Demand and Power Factor Charges
- Power Purchase Agreement Term Sheet
- ISO 50001 Energy Review Checklist
- On-Site Generation Business Test

Day 5: Applying Power Systems Literacy to One Organisation

Is the briefing pack ready for a board to decide on a supply option?

- Applying the Session 1 Load Profile to the Chosen Site
- Mapping the Site Supply Path from the Session 2 Network Map
- Rating Supply Risks Using the Session 3 Cause Tree
- Testing Session 4 Tariff Options Against the Load Profile
- Completing the Power Supply Briefing Pack

Methodology

The programme is built around structured exercises and short case analyses. Participants work with an anonymised site, its single-line diagram, load profile and tariff sheet, translate each into plain statements and test supply options in small teams. Each team then presents its briefing pack to a simulated board.

- Suggested activity: Reading a single-line diagram and naming each point of failure.
- Suggested activity: Comparing two tariff offers against a half-hourly load profile.
- Suggested activity: Tracing an outage report back to its likely cause.

Capstone Output

Each participant completes a power supply briefing pack for one organisation. It contains a plain-language supply map, a load profile summary, a ranked supply risk list, a tariff comparison and a recommended supply action. It is used to brief a board or investment committee and to open discussions with suppliers and engineers.

Frequently Asked Questions

Is power systems literacy suitable for managers who have never studied electrical engineering?

Yes. Power systems literacy is set at managerial level and assumes responsibility for energy cost, supply or projects, not electrical training or advanced mathematics.



Which standards does power systems literacy rest on in this programme?

Power systems literacy rests on IEC 60038 for standard voltages and ISO 50001 for energy management, supported by the load duration curve and merit order dispatch.

How is the power systems literacy briefing pack used at work?

You use the power systems literacy briefing pack to brief a board, compare supply options and prepare questions for suppliers and engineers.

How does power systems literacy differ from a programme on electrical protection design?

Power systems literacy explains how supply works and is priced for non-engineers, while a protection design programme teaches engineers to set and coordinate protective devices.