Transition Engineering Course: Fossil Fuel Dependence, Staged Shifts and Risk for Asset Owners

23 – 27 November 2026
Tokyo

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Programme Summary

Transition engineering for energy-dependent organisations is the subject of this one-week training course for energy managers, operations directors, sustainability heads and asset owners, taught at strategic level and ending in a transition plan for one energy-dependent activity. Many organisations rely on fossil fuel for core activities without a staged way to change. The programme moves from mapping that dependence to ranking unsustainable activities, designing staged shifts and controlling their risk, using prepared organisational cases. Mars Training Centre UK delivers this programme on transition engineering to mixed-organisation cohorts.

The Business Case

Fuel supply, price and rule changes reach organisations unevenly, and a plan made in a crisis costs more than one made in advance. A leader who can show which activities depend on fossil energy, which of them cannot continue unchanged and what each shift would risk can sequence investment instead of reacting. The programme works on the measures below.

- Fuel Exposure: Falls when dependent activities are inventoried and ranked before supply or price shocks arrive.
- Transition Cost: Is contained when shifts are staged, piloted and funded against agreed triggers.
- Stranded Asset Risk: Is reduced when asset life is tested against each pathway before capital is committed.

Principles and Evidence Base

- ISO 50001: The international standard for energy management systems, applied in Session 1 to read energy reviews and baselines as the evidence for dependence.
- ISO 31000: The international guidelines on risk management, applied in Session 4 to rate and control the risk of each staged shift.

Intended Participants

- Energy managers who hold the data on fuel and electricity use across sites.
- Operations directors who answer for the activities that depend on that energy.
- Sustainability heads who must turn transition ambition into sequenced action.
- Asset owners who decide where capital goes and how long assets will run.

Typical settings include utilities, manufacturing, transport and logistics, and property portfolios.

Learning Outcomes

1. Participants will be able to evaluate how far core activities depend on fossil energy.
2. Participants will be able to diagnose which energy-dependent activities are unsustainable and why.
3. Participants will be able to construct staged pathways that change energy supply and demand.
4. Participants will be able to prioritise shifts by risk, cost and asset life.
5. Participants will be able to justify a transition plan to a board or investment committee.

Programme Structure

Day 1: Transition Engineering Foundations and Energy Dependence

Which activities in the organisation depend on fossil energy, and by how much?

- Energy Dependence Inventory
- Activity Boundary Map
- Fuel and Electricity Baseline Table
- ISO 50001 Energy Review Reading
- Vulnerability Screen

Day 2: Unsustainable Activities and Transition Drivers

Which energy-dependent activities cannot continue as they are, and why?

- Supply Risk Assessment
- Price and Cost Exposure Table
- Emission and Rule Pressure Scan
- Activity Priority Ranking
- Failure Mode Narrative

Day 3: Transition Pathways and Staged Shifts

What staged changes in energy supply and demand are available?

- Demand Reduction Options
- Fuel Switching Options
- On-Site Supply Alternatives
- Pathway Staging Chart
- Option Scorecard

Day 4: Transition Risk and Decision Control

How is the risk of each shift found, rated and controlled?

- ISO 31000 Risk Rating
- Stranded Asset Check
- Skills and Dependency Gap Review
- Pilot and Trigger Design
- Funding and Governance Gate

Day 5: Transition Plan for One Energy-Dependent Activity

Do the results join into a plan that a board can approve?

- Applying the Session 1 Dependence Inventory
- Testing the Session 2 Priority Ranking
- Checking the Session 3 Pathway Chart
- Reviewing the Session 4 Trigger Design
- Completing the Transition Plan

Methodology

The programme is a case analysis built on prepared records for a manufacturing group and a regional transport operator. Participants take one activity from fuel inventory through ranking, pathway design and risk rating, then present the resulting plan to peers acting as an investment committee, who challenge assumptions about supply, cost and timing.

- Suggested activity: Building a dependence inventory from a prepared fuel and electricity record.
- Suggested activity: Ranking six activities by supply risk and cost exposure.
- Suggested activity: Setting a pilot and a trigger for the first stage of a pathway.

Capstone Output

Each participant completes a transition plan for one energy-dependent activity. It holds the dependence inventory, the priority ranking, a staged pathway chart, a risk rating and a trigger and funding gate for each stage. At work it goes to the board or investment committee and becomes the template for the next activity on the list.

Frequently Asked Questions

Is transition engineering training suitable for leaders who are not engineers?

Yes. Transition engineering is taught through prepared cases and templates. You need responsibility for energy use, operations, sustainability or assets, but no engineering design or modelling background.

Which standards does transition engineering rest on in this training?

Transition engineering here uses ISO 50001 to read energy reviews and baselines and ISO 31000 to rate the risk of each staged shift.

How is the plan from transition engineering training used at work?

You take the transition plan to your board or investment committee, use its triggers to release funding stage by stage, and reuse its template for the next energy-dependent activity.

How does transition engineering differ from a programme on energy efficiency and carbon management?

Transition engineering concentrates on changing activities that depend on fossil energy through staged pathways, while a programme on energy efficiency and carbon management concentrates on reducing use and emissions within existing operations.