JUPITER PRIME

Consulting • Training • Advisory

جوبيتر برايم للاستشارات والتدريب

COURSE BROCHURE

Power Station Emissions and Environmental Impact Training Course

27 September – 1 October 2027
Barcelona

Power Station Emissions and Environmental Impact Training Course

Ref: 3096_117590 **Date:** 27 September – 1 October 2027 **Location:** Barcelona **Fees:** 6200 GBP

Power Station Emissions and Environmental Impact is a 1-week training course for environmental officers, plant engineers and sustainability staff who quantify plant releases to air, water and land, leaving with a power station emissions inventory and reduction plan. Lenders, grid buyers and local communities now ask for stack, cooling water and carbon figures that can be traced to source. Jupiter Prime Training delivers this course.

Why Power Station Emissions and Environmental Impact Matters Now

Three forces shape this subject today. Fuel switching and the arrival of storage and renewable units change the emission profile of every fleet each year. Investors and electricity buyers want carbon intensity per megawatt hour reported against a consistent baseline. Communities and permitting authorities watch nitrogen oxides, particulates and thermal discharge. A plant that measures well defends its operating licence and plans retrofits in order; one that guesses risks enforcement and curtailment. The course rests on recognised greenhouse gas accounting and plant monitoring practice.

Who Gains Most from Power Station Emissions and Environmental Impact

- Staff handling stack monitoring and permit returns at generating sites
- Engineers running combustion, flue gas treatment and cooling water systems
- Sustainability staff compiling fleet carbon figures for owners and buyers
- Planners who weigh retrofit, fuel change and retirement options for thermal units
- Staff handling ash, wastewater and chemical storage on site

A generating company gains most when its chemistry, operations and sustainability staff attend together and agree one set of emission factors.

Power Station Emissions and Environmental Impact Capabilities

Participants turn fuel and stack readings into a defensible carbon and pollutant picture of each unit.

- Calculate unit carbon dioxide output from fuel flow, heating value and emission factors — fleet carbon reporting
- Assess nitrogen oxides, sulphur dioxide and particulate results against permit limits — operating licence decisions
- Weigh thermal discharge, water withdrawal and wastewater effects on receiving waters — cooling system choices
- Build a carbon inventory with clear boundaries for direct and purchased electricity emissions — owners and buyers
- Test abatement and fuel switching options by cost per tonne avoided — capital allocation
-

Communicate emission trends and uncertainty to communities and lenders — stakeholder trust

Key Power Station Emissions and Environmental Impact Terms

- Emission factor — the mass of a pollutant or greenhouse gas released per unit of fuel burned or electricity generated.
- Carbon intensity — tonnes of carbon dioxide equivalent released for each megawatt hour of electricity sent out.
- Continuous emissions monitoring — stack instruments measuring pollutant concentration and flow without interruption.
- Thermal discharge — warmed cooling water returned to a river or sea after the condensers.
- Heat rate — fuel energy needed to generate one kilowatt hour, a direct driver of emissions.
- Abatement cost curve — reduction options ranked by cost per tonne avoided.

Power Station Emissions and Environmental Impact Day by Day

Day 1: How Generation Creates Emissions

- Combustion Chemistry of Gas, Oil and Coal — Pollutant Formation by Fuel
- Heat Rate and Efficiency Losses — Link Between Fuel Burn and Carbon
- Emission Sources Across the Plant — Stack, Auxiliary Boilers and Fugitive Leaks
- Insulating Gas Leakage in Switchyards — Hidden Greenhouse Contribution
- Stakeholder Expectations From Lenders and Communities — Reporting Pressure on Plants

Day 2: Measuring Air Emissions

- Continuous Stack Monitoring Instruments — Data Quality and Calibration Checks
- Periodic Stack Sampling Methods — Verifying Continuous Readings
- Nitrogen Oxides and Sulphur Dioxide Controls — Burner Tuning and Scrubber Choices
- Particulate Capture With Filters and Precipitators — Removal Performance Targets
- Missing Data Substitution Rules — Defensible Annual Emission Totals

Day 3: Water, Ash and Land Impacts

- Once-Through and Recirculating Cooling Systems — Withdrawal and Thermal Load
- Wastewater Streams From Boiler Blowdown — Treatment Before Discharge
- Ash and Gypsum Handling and Reuse — Storage Risk and Sales Outlets
- Noise and Ground Contamination Surveys — Neighbour Complaints and Site Closure
- Environmental Impact Screening for Plant Changes — Permit Variation Decisions

Day 4: Carbon Accounting for Power Assets

- Inventory Boundaries for Owned and Shared Units — Consistent Fleet Reporting
- Direct, Purchased Electricity and Supply Chain Emissions — Scope of Disclosure
- Fuel Records and Laboratory Analysis — Plant-Specific Emission Factors
- Uncertainty and Materiality Assessment — Confidence in Reported Totals
- Abatement Cost Curve for the Fleet — Order of Reduction Investments

Day 5: Practising the Emissions Inventory and Reduction Plan

- Unit Carbon Calculation From Fuel Data — Applying Day Four Factors
- Permit Compliance Gap Check — Applying Day Two Monitoring Results
- Cooling Water and Ash Risk Register — Applying Day Three Impact Findings
- Fuel Switching, Co-Firing and Retirement Scenarios — Fleet Reduction Pathway
- Power Station Emissions Inventory and Reduction Plan — Board-Ready Summary

Applying Power Station Emissions and Environmental Impact After the Course

- Recalculate one unit's annual carbon output from fuel records and plant-specific emission factors.
- Rank three abatement options for one plant on an abatement cost curve for the operations manager.

Power Station Emissions and Environmental Impact Questions FAQ

What is power station emissions and environmental impact work, and why does it matter now?

It is the measurement and reduction of what generating plants release to air, water and land. It matters now because lenders, electricity buyers and communities expect traceable carbon and pollutant figures.

Which roles gain most from power station emissions and environmental impact training?

Plant environmental officers, combustion and chemistry engineers, and fleet sustainability staff gain most, especially where stack data, cooling water or carbon reporting are part of the role.

How does power station emissions and environmental impact training differ from a general energy efficiency course?

It centres on what plants emit and discharge, not on saving energy in buildings or loads. You work with stack monitoring, cooling water and generating unit carbon inventories.

What do you bring back from power station emissions and environmental impact training?

You bring back a draft emissions inventory for a generating unit, a monitoring gap check and a ranked set of reduction options for colleagues to refine.

Power Station Emissions and Environmental Impact: The Way Forward

The power station emissions inventory and reduction plan first informs which unit receives abatement spending next. Plant managers, sustainability staff and owners use it to agree targets and answer buyer questionnaires. After its first annual cycle, the boundaries, emission factors and missing data rules deserve a fresh look, as fuel mix and fleet composition change.