JUPITER PRIME

Consulting • Training • Advisory

جوبيتر برايم للاستشارات والتدريب

COURSE BROCHURE

Oil and Gas Site Power Supply Planning Training Course

21 – 25 March 2027
Online

jupiterprime.uk

info@jupiterprime.uk

Registered in the United Kingdom and Saudi Arabia

Oil and Gas Site Power Supply Planning Training Course

Ref: 2900_110649 **Date:** 21 – 25 March 2027 **Location:** Online **Fees:** 2900 GBP

Oil and Gas Site Power Supply Planning is a 1-week training course for power and utilities engineers at production, processing and refining facilities, built around a site power supply options study for one asset. Facilities face rising electrical demand from compression and electrified drives while owners push to cut fuel gas burned and flaring. Jupiter Prime Training treats the subject as the link between process reliability and the energy bill.

Why Oil and Gas Site Power Supply Planning Matters Now

Three pressures meet at the site fence. Operators want fuel gas freed for sale or reinjection rather than burned in inefficient open-cycle units. Electrification of compressors and pumps is lifting peak demand on islanded networks that were never designed for it. And solar and wind plant has become cheap enough to sit beside turbines, provided the network can absorb its variability. Good planning holds uptime while cutting fuel use; poor planning brings trips and costly retrofits. The course rests on plant thermodynamics and network reliability principles, explained in general terms.

Who Gains Most from Oil and Gas Site Power Supply Planning

- Utilities engineers responsible for generator dispatch and spinning reserve on islanded sites
- Electrical engineers who size switchgear, load shedding and network studies
- Process engineers who supply steam and heat demand profiles for recovery schemes
- Energy and emissions specialists who track fuel gas consumption per unit of output
- Project engineers who compare brownfield supply upgrades for capital approval

Facility utilities groups gain most when electrical, process and energy specialists attend together.

Oil and Gas Site Power Supply Planning Capabilities

Participants weigh generators, heat recovery and renewables against real facility load.

- Build a site load profile with critical, essential and sheddable loads — generator count and reserve policy
- Calculate heat rate and part-load efficiency for candidate gas turbines — fuel gas budget for each option
- Assess heat recovery steam and process heat potential — the case for cogeneration
- Specify solar and wind share within network stability limits — renewable penetration on an islanded grid
- Weigh lifecycle cost, emissions and availability across supply options — capital approval for the asset owner
- Communicate supply risk and redundancy to operations leaders — outage tolerance decisions

Key Oil and Gas Site Power Supply Planning Terms

- Heat rate — fuel energy consumed per unit of electricity generated.
- Cogeneration — producing electricity and useful heat or steam from one fuel source at the same site.
- Heat recovery steam generator — a boiler that raises steam from turbine exhaust heat.
- Spinning reserve — online generating capacity held back to cover the sudden loss of a running unit.
- Islanded network — a site electrical system that runs without a connection to a public grid.
- Capacity factor — actual energy produced compared with continuous full output.

Oil and Gas Site Power Supply Planning Day by Day

Day 1: Demand, Fuel and Emissions Context

- Site Load Profiles and Duty Cycles — Sizing Generation to Real Demand
- Load Criticality Classification — Which Consumers Ride Through a Trip
- Fuel Gas Balance and Flaring Records — Value of Gas Saved
- Electrified Drive Growth Forecasts — Future Peak Demand on Site
- Emissions Intensity Baselines — Targets Shaping Supply Choices

Day 2: Gas Turbine Generation on Site

- Open Cycle Turbine Performance Curves — Ambient Temperature and Altitude Derating
- Heat Rate at Part Load — Running Fewer Units Harder
- Aeroderivative Versus Industrial Frame Units — Footprint, Start Time and Maintenance
- Reciprocating Gas Engines — Alternative for Small and Variable Loads
- N+1 and N+2 Redundancy Schemes — Unit Count Against Availability

Day 3: Recovering Heat and Steam

- Exhaust Heat Recovery Steam Generators — Matching Steam to Process Demand
- Cogeneration Heat to Power Ratios — Fit With Site Heat Users
- Supplementary Firing and Bypass Stacks — Flexibility When Process Heat Varies
- Waste Heat to Power Units — Value From Low Grade Exhaust
- Steam and Power Balance Diagrams — Spotting Surplus and Shortfall

Day 4: Adding Solar and Wind

- Solar Yield and Wind Resource Estimates — Expected Capacity Factor on Site
- Renewable Penetration Limits on Islanded Grids — Frequency and Voltage Stability
- Battery Energy Storage Sizing — Smoothing Ramps and Covering Reserve
- Generator Turndown and Minimum Loading — Fuel Saving From Renewable Share
- Grid Import and Export Options — When a Utility Connection Pays

Day 5: Practising the Site Power Supply Options Study

- Option Screening Matrix — Applying Load, Fuel and Emissions Criteria
- Dispatch Simulation for Each Configuration — Fuel Burn and Reserve Over a Year
- Lifecycle Cost and Emissions Comparison — Ranking Options for the Owner
- Supply Reliability Assessment — Trip Scenarios and Load Shedding Response
- Site Power Supply Options Study Report — Recommended Configuration and Phasing

Applying Oil and Gas Site Power Supply Planning After the Course

- Update the site load profile with criticality classes and check spinning reserve against the largest running unit.
- Screen one heat recovery or solar addition against the fuel gas balance and present the result to the utilities lead.

Oil and Gas Site Power Supply Planning Questions FAQ

What is oil and gas site power supply planning and why does it matter now?

It is choosing how a facility generates and secures its electricity and heat. It matters now because demand is rising, fuel gas has sale value and renewables can share the load.

Which roles gain most from oil and gas site power supply planning?

Utilities, electrical and process engineers gain most. You decide unit counts, reserve and heat recovery, so your choices set both uptime and fuel use.

How does oil and gas site power supply planning differ from a gas turbine maintenance course?

This course compares whole supply configurations for a site. A gas turbine maintenance course focuses on inspecting and repairing one machine; here the attention stays on load, heat balance, renewables and redundancy.

What do you bring back from oil and gas site power supply planning?

You bring back a screened set of supply options for your facility, with load profile, fuel balance and ranked lifecycle comparison.

Oil and Gas Site Power Supply Planning: The Way Forward

The site power supply options study first informs whether the next capital request adds turbines, heat recovery or solar plant. Utilities leads and asset owners use it to phase investment. After its first use, revisit the load forecast as electrified drives come online, since growing demand can reorder the options.