

€ TRAINING

Combined Cycle and Cogeneration Plant
Modelling with EPC Contracts for Power and
Energy Projects by ETC





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Introduction:

This training program equips participants with the knowledge and skills to effectively model combined cycle and cogeneration plants, navigate EPC contracts for power and energy projects. It empowers them to make informed decisions throughout the project lifecycle, from feasibility studies to plant operation.

Program Objectives:

At the end of this program, participants will be able to:

- Understand the fundamentals of combined cycle and cogeneration plant technologies.
- Develop and utilize software tools for modeling and simulating combined cycle and cogeneration plant performance.
- Analyze the economic viability of power and energy projects.
- Identify and interpret key clauses within EPC contracts for power plants.
- Manage the procurement process for power plant equipment and materials.
- Oversee the construction phase of a power plant project.
- Ensure successful project completion within budget and schedule constraints.

Targeted Audience:

- Power plant engineers.
- Project managers.
- Investment analysts.
- EPC contractors.
- Consultants.
- Utility professionals.

Program Outline:

Unit 1:

Combined Cycle and Cogeneration Plant Fundamentals:

- Define combined cycle and cogeneration technologies.
- Explore the principles of thermodynamic cycles and performance analysis.
- Identify key plant equipment and components.
- Discuss fuel selection and emissions considerations.
- Analyze the impact of plant design on efficiency and environmental impact.

Unit 2:

Power Plant Modeling and Simulation:

- Introduce power plant modeling software and its capabilities.
- Develop models of combined cycle and cogeneration plant configurations.
- Simulate plant performance under various operating conditions load variations, fuel types.
- Perform economic analysis and calculate the cost of electricity generation.
- Utilize modeling tools to optimize plant design and operating strategies.

Unit 3:

EPC Contracting for Power Plants:

- Explain the concept of EPC contracts and their typical structure.
- Discuss risk allocation and mitigation strategies within EPC contracts.
- Identify and interpret key contractual clauses scope of work, warranties, guarantees.
- Develop effective negotiation and administration procedures for EPC contracts.
- Analyze different contracting models turnkey vs. lump sum and their implications.

Unit 4:

Procurement for Power Plants:

- Develop strategies for sourcing equipment and materials for power plants.
- Evaluate bids and select qualified suppliers based on technical and commercial criteria.
- Implement quality control and inspection procedures to ensure equipment and materials meet

specifications.

- Manage vendor relationships and communication throughout the procurement process.
- Optimize procurement costs while maintaining quality and delivery timelines.

Unit 5:

Power Plant Construction Management:

- Develop and utilize project scheduling and monitoring techniques Gantt charts, CPM.
- Implement construction site management practices and safety protocols.
- Manage change orders effectively to minimize cost and schedule impacts.
- Oversee commissioning and handover procedures to ensure a smooth transition to operation.
- Identify and address potential challenges during construction to ensure project success.