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Cleaner and More Efficient Gas Turbines

Thematic Network

WP5-ADVANCED SYSTEMS



Combined Cycle

Combined Heat and Power

Balance of Plant

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ADVANCED SYSTEMS

Thermal Efficiency	Simple Cycle	Combined Cycle	CHP
Today	40 %	60 %	>90 %
Tomorrow	50 %	65 %	>90 %

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ADVANCED SYSTEMS

Overall View of Specific Costs of Electricity 50 MW CC Plant, 7000 h p.a.

Specific capital costs (C/kWh):	23,5	%
Specific fuel costs (C/kWh):	54,8	%
Specific insurance and administration costs (C/kWh):	1,3	%
Specific costs for operating stuff (C/kWh):	1,9	%
Specific taxes (C/kWh):	1,7	%
Specific costs for maintenance related to operating hours (C/kWh):	11,9	%
Specific costs for consumables (C/kWh):	5,0	%



ADVANCED SYSTEMS

Gas Turbines Application for Power Generation

- Simple Gas Turbine Cycle
- Combined Gas Turbine Cycle
- Combined Heat and Power
- Intercooled Cycle
- Rekuperated Cycle



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ADVANCED SYSTEMS

MINIMIZE LOSSES

- Fuel feed System
- Pumps, Ventilation
- Cooling Systems
- Bearings
- Ducts
- Fouling
- Heat Losses
- Start up
- Shut down

OPTIMIZE SYSTEMS

- Recuperator
- WHRB
- Intercooling
- Water Injection
- Steam Injection
- Cycle Arrangement
- Electrical Systems
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