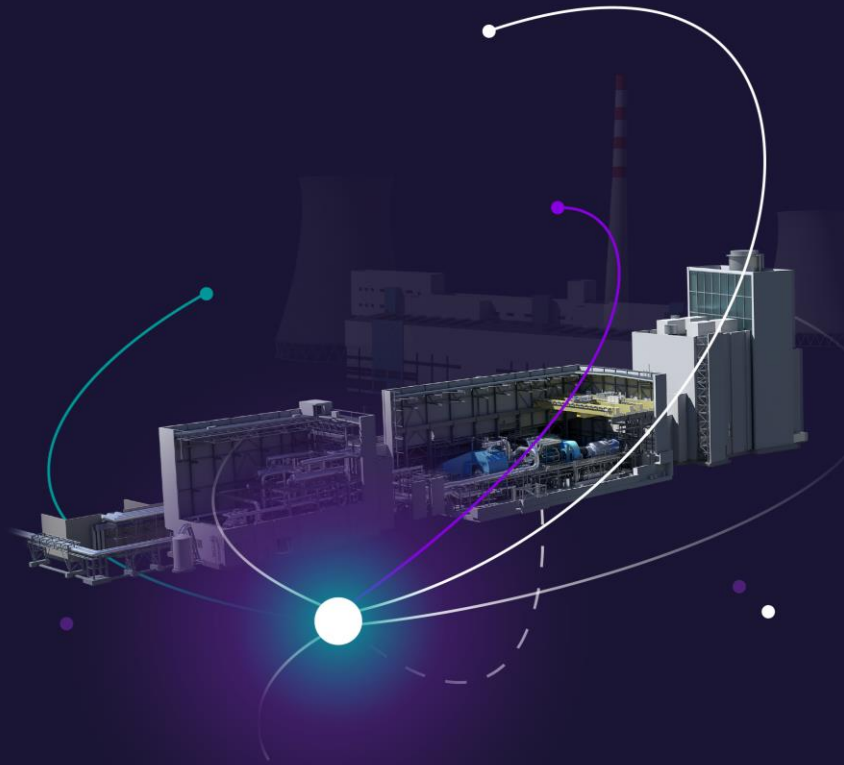


Coal to Gas Repowering (C2G)

Reduce CO2 emissions during construction and operation by converting steam power plants into more efficient combined cycle plants.



Sustainability

- Carbon Footprint
- Operational Emissions



Flexibility

- Fuel Flexibility
- Operational Flexibility

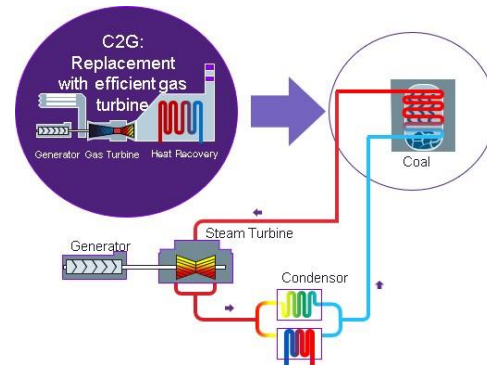


Efficiency

- Base Load Efficiency
- Transient Efficiency

Intended Benefits

- Up to **70% CO2 reduction in operation** due to conversion from coal to gas and improved efficiency
- **Cost savings of up to 30% and reduced life cycle CO2 emissions** due to reduced need to invest in new site infrastructure compared to a new plant
- Up to **25% points increased base load efficiency** and significant part load efficiency increase
- Wider range of **operation flexibility**: From 20% to 100% of plant capacity (bypass stack available), Frequency response operation - Load gradients up to 85 MW/min, significant reduced Start Up times
- Ready for **up to 30% H2 co-firing** (Siemens Energy's current technology, we are striving to further increase this capability)



Coal to Gas schematic

Steam Turbine
CP5-21-0015-ST-EN-01

Scope

Support power producers to manage the transformation from coal

- Convert coal or oil plant into gas fired combined cycle
- Upgrade assets to latest Siemens Energy technology
- Potentially integrate hybrid / green technologies
- Evaluate business case

Ideation

Assess the power plant's market environment and regional energy system to optimize set up of the concept and components involved.

Geometrical fit

Design of concept how „new steel fits into existing concrete“, connecting all relevant terminal points.

Thermodynamic concept

Assess the optimized configuration of engines and load capacity in conjunction with customer's stated future operation requirements.

Steam turbine retrofit – also for non-Siemens Energy turbines

The existing steam turbines are retrofitted to adapt to the new combined cycle steam parameters (mass flow, temperature, pressure).

A Front End Engineering Design (FEED) study is conducted before the implementation phase to assess feasibility, including a detailed design of all components and interfaces as input to develop a proposal.

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