

7F Syngas Turbine

High Efficiency Power Generation for IGCC

fact sheet

The power generation industry is being challenged by a tighter traditional fossil-fuel supply—particularly light crude and natural gas—rising environmental interests and greenhouse gas (GHG) regulations. In this environment, it is increasingly important for power generators to deploy technologies that can improve plant efficiencies, enable carbon capture and utilize abundant fuels such as coal and refinery bottoms.

With such challenges in mind, GE Energy offers the 7F Syngas turbine. The 7F Syngas turbine is designed with proven syngas technology, low-BTU fuel capability and advanced gas turbine options. It can be integrated into an Integrated Gasification Combined Cycle (IGCC) or polygeneration plant, where it can provide improved output, enhanced efficiency, fuel economy and flexibility, and ultimately, reduced cost of electricity.

Product Features and Benefits

GE Energy's 7F Syngas turbine uses GE Energy's F-class product experience.

Performance Ratings

| | Power Output* | Efficiency* |
|------------------------------|---------------|-------------|
| Simple Cycle | 232 MW | 41.0% |
| Combined Cycle (207F Syngas) | 780 MW | 67.9% |

* ISO day for GE Energy's 60 Hz IGCC Reference Plant on Illinois Basin Coal derived syngas with air extraction.

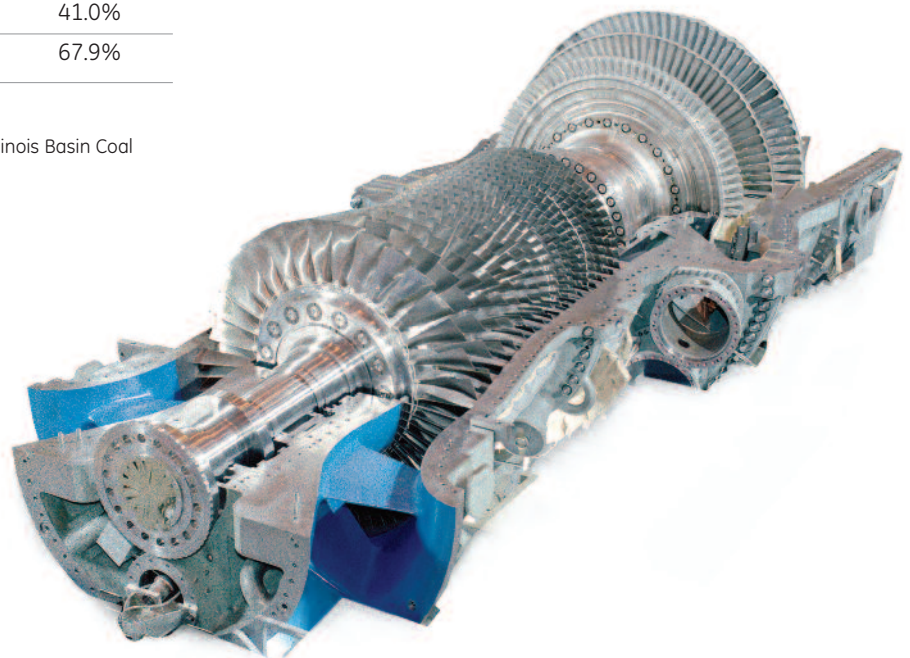
The 7F Syngas HDGT is capable of generating 232 MW of power in simple-cycle operation and incorporates a number of F-class technology advancements specifically enhanced for syngas including:

- GE Energy's low-BTU fuel Multi-Nozzle Quiet Combustion (MNQC) system
- Advanced controls
- Robust compressor and turbine systems that allow for increased torque and temperature operation

The 7F Syngas HDGT has been designed with flexibility for compressor air extraction, allowing for integration in a variety of power plant cycles.

Syngas Experience

With over three gigawatts (GW) of installed base in operation today—26 gas turbines in 15 polygeneration plants—and in excess of one million firing hours, GE Energy has established itself as a world leader in power generation on low BTU fuels. Capitalizing on this experience, GE Energy syngas turbines have been designed for universal gasification applicability and a variety of fuels including high- and low-sulfur coals, petroleum coke and low value refinery bottoms.



Distinguished Operation

The F has accumulated in excess of 23 million hours of operation, marking a milestone in advanced technology gas turbines. As of September 2008, there were more than 675 7F-class units in operation, offering some of the highest reliability, availability, and maintainability (RAM) in the industry.

Emissions Reduction

The 7F Syngas turbine reaches NO_x emissions of <15 ppmvd at 15% O_2 with no SCR.

Carbon Capture Ready

The 7F Syngas turbine can be integrated into a high hydrogen fuel (60% H_2 /40% N_2) stream in plants equipped with carbon capture technology for enhanced oil recovery (EOR) or regulatory compliance.

In developing the 7F Syngas turbine, GE Energy maintains many of the proven features of the world's most successful advanced technology gas turbine.

GE Energy offers a wide array of technological options to meet the most challenging energy requirements. Using an integrated approach that includes parts, service, repair and project management, we deliver results that contribute to our customers' success.

