

46ESS-82: Siemens Industrial Gas Turbines and Technology Evolution

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Over the years, the necessity for better efficiency, reduced cost, fuel flexibility, emissions legislation requisites, availability, and reliability have driven technological advancement in the industrial gas turbine industry. Siemens; a world-renowned turbine manufacturer have proven up to this task with a fleet of state of the art industrial combustion turbines to meet the dynamicity of customer requirements.

The paper presents a study of how Siemens have constantly and in a timely manner added value to their industrial fleet in recent times, achieving user satisfaction and regulation requirements. The industrial portfolio of Siemens consists of nine GT's with a power range of 5-53mw and gross efficiencies of over 30%, with the latest addition to the collection; the SGT750 (39mw) which bridged the power output gap having an astounding efficiency of 40.2% in simple cycle configuration.

The article critically evaluates the four topmost engines in the industrial turbine class and the various modifications introduced to the combustion systems, turbine and compressor blading profiles, gas path configurations and their effect on performance, emissions, fuel adaptability, and mean time between failures. Ultimately the paper suggests future development trends of the industrial engines.