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1.3.1.2-4 Effect of Drive Gases on Gas Turbine Operating Parameters 1.3.1.2-5 Effect of Coolant on Gas Turbine Blade Temperatures 1.3.1.2-6 Gas Turbine Operation with CES Gases versus Air-Breathing Gases

Gas Turbine Handbook | netl.doe.gov
Gas turbines are available in sizes ranging from approxi-. mately one to more than 300 megawatts (MW) and are used to meet diverse power needs, including propulsion (e.g., aircraft, ships, and trains), direct drive (e.g., pumps and com- pressors) and stationary electricity generation.

Combined Heat and Power Technology ... - Department of Energy
Selected projects will support DOE’s Advanced Coal and Power Systems goals by developing advanced, highly efficient, turbine-based technologies applicable to fossil fuels, including coal-derived synthesis gas, coal-derived hydrogen, and natural gas. The projects will be managed by the National Energy Technology Laboratory.

Department of Energy Announces up to $5.5 Million for ...
Advanced Turbines. The NETL Advanced Turbines Program manages a research, development, and demonstration (RD&D) portfolio designed to remove environmental concerns over the future use of fossil fuels by developing revolutionary, near-zero-emission advanced turbines technologies. In response to the Nation’s increasing power supply challenges,...

Advanced Turbines | netl.doe.gov
Turbine Aero-Thermal Technologies for 65 Percent Combined Cycle Efficiency – General Electric (Schenectady, NY) will create a gas turbine technology development program that develops mechanically feasible, emerging, aerodynamic, and heat-transfer technologies to optimize the entire turbine system and improve overall gas turbine cycle efficiency. General Electric will select conceptual design configurations that contribute to the 65 percent efficiency performance goal.

Energy Department Selects Advanced Turbine Technology ...
The Gas Turbine Laboratory is a research organization within the academic department of Aeronautics and Astronautics in the MIT School of Engineering. Faculty, staff, and students are associated with both the GTL and an academic department, usually (but not necessarily) Aero/Astro or Mechanical Engineering.

MIT Gas Turbine Laboratory
A simple cycle gas turbine can achieve energy conversion efficiencies ranging between 20 and 35 percent. With the higher temperatures achieved in the Department of Energy's turbine program, future hydrogen and syngas fired gas turbine combined cycle plants are likely to achieve efficiencies of 60 percent or more.

How Gas Turbine Power Plants Work | Department of Energy
Cycle) as larger combustion turbines and share many of the same basic components. In the Brayton cycle, atmospheric air is compressed, heated by burning fuel (e.g., natural gas), and then used to drive an expansion turbine that in turn drives both the inlet compressor and a drive shaft connected to an electrical power gen-erator.

Combined Heat and Power Technology ... - Department of Energy
the gas turbine and the engine's auxiliary systems. The engine is based around an automo-. bile turbocharger comprised of a compressor and turbine that operate on a common shaft. Between the outlet of the compressor and the turbine inlet is a combustion chamber.

Design and Performance of a Gas-Turbine Engine from an ...
The basic operation of the gas turbine is a Brayton cycle with air as the working fluid. Atmospheric air flows through the compressor that brings it to higher pressure. Energy is then added by spraying fuel into the air and igniting it so the combustion generates a high-temperature flow.

Gas turbine - Wikipedia
Reliable gas turbines up to 567 MW. Whatever your business challenges may be, our gas turbines are precisely designed to master the dynamic energy market environment. Low lifecycle costs and an excellent return on investment right from the start are just two of the benefits that our gas turbine portfolio offers.

Gas turbines | Power Generation | Energy Technology ...
Gas Turbine Technology Lecture at the Department of Aerospace Engineering Middle East Technical University Ankara, April 2008 Wolfgang Sanz Institute for Thermal Turbomachinery and Machine Dynamics Graz University of Technology Austria Content • Gas turbine design • History • Thermodynamics of gas turbine cycle • Peak temperature and ...

Gas Turbine Technology - METU
NETL conducts research under a DOE-sponsored a program for developing hydrogen-fueled gas turbine technology for coal-based integrated gasification combined cycle (IGCC) power generation to improve...

Innovations for Improved Gas Turbine Productivity | Power ...
Benefit from our expertise and experience in industrial power generation: Siemens gas turbines can be used for power generation and cogeneration (Combined Heat and Power, CHP) in many industries, such as the chemical and fiber, cement, metals and mining, as well as other manufacturing industries.

Gas Turbines | Manufacturer | Power Generation | Siemens ...
The U.S. Department of Energy's Advanced Turbine Systems (ATS) program is helping U.S. manufacturers to remove the technical barriers to achieving significant advances in gas turbine technology.

Department of Energy: Fossil Energy - Advanced Gas Turbine ...
The superior power-to-weight ratio of the gas turbine and its fixed speed gearbox, allows for a much lighter prime mover than for the Toyota Prius (a 1.8 litre petrol engine) or the Chevrolet Volt (a 1.4 litre petrol engine). This in turn allows a heavier weight of batteries to be carried, which allows for a longer electric-only range.

Microturbine - Wikipedia
The U.S. Department of Energy Office of Fossil Energy manages the Advanced Turbine Program, which strives to improve U.S. gas turbine technology for coal-based power plant applications with carbon capture and storage. One of the key elements of the Advanced Turbine Program is the University Turbine System Research (UTSR) Program.

UTSR | Southwest Research Institute
MHPS Americas' expertise includes natural gas, steam, aero-derivative, geothermal, and distributed renewable power generation technologies and services, along with renewable hydrogen and battery energy storage systems, environmental control systems solutions, and digital solutions enabling autonomous operations and maintenance of power assets throughout North and South America.

Intermountain Power Agency Orders MHPS JAC Gas Turbine ...
NISKAYUNA, NY - With the natural gas turbine fast becoming the workhorse for new power generating plants in the United States, the U.S. Department of Energy is preparing to award two new research contracts that could help improve the environmental performance and efficiencies of tomorrow's high-efficiency turbines.

Innovations in Gas Turbines to be Pursued In 2 ... - Energy
A combined cycle power plant is an assembly of heat engines that work in tandem from the same source of heat, converting it into mechanical energy.On land, when used to make electricity the most common type is called a combined cycle gas turbine (CCGT) plant.The same principle is also used for marine propulsion, where it is called a combined gas and steam (COGAS) plant.