Technical and Economical Comparison of Fuel Cell Power Plant (Micro Turbine) With another New Energetic Plants

Key words: Fuel Cell – New Energies – Micro Turbine

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Abstract:

Fuel cell power plants are located in proximity of the consumer and at the source of demand, and are attached the overall network during low or medium power supply periods. Basically the main difference between this type of power supply and other power supply systems is in the type of power pack used. Fuel cells, photovoltaic system, and wind turbines are types of power packs which are categorized as Distribution power supply system.

Among the main benefits of fuel cells is their capability to support the peaking periods in the overall power network and their capability to be used independently by the consumers to provide power during peak demand, along with their utilization in the overall stabilizing of the system.

The short period of time allocated to the building of these power plants in comparison to those of Gas. Turbine power plants, large thermal power plants and hydro power plants; their proximity to the demand source - which in itself minimizes the amount of energy loss due to transmission -, the replacing of large fossil fuel power plants in urban areas and thus decreasing environmental pollution are among the other benefits of these types of power plants.

This article will be focusing upon the importance of fuel cell power, the various types of fuel cells and their operation, along with the technical and environmental specifications, limitations and economics of development. It will also consider the operation of fuel cell power plants, their distribution in the overall power network and a comparison of power produced in a fuel cell power plant with other sources.