

## 5.1 Overview and Recommendations of the First Workshop

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### Abstract

The Morgantown Energy Technology Center of DOE held a Workshop on October 19, 1995, to explore the subject of Very High Efficiency Fuel Cell/Gas Turbine Power Plants. By combining the two systems and in effect allowing the fuel cell to serve as the combustor for the gas turbine and the gas turbine to serve as the balance of plant for the fuel cells, the combined efficiency is raised to the 58-63% range in power plants with a capacity of less than 20 MW and to 70-75% in plants larger than 200 MW, NO<sub>x</sub> emissions are essentially eliminated and the capital cost of the combined system is markedly reduced relative to the cost of a stand-alone power plant of either type.

The purpose of the Workshop was to bring together a broad cross-section of knowledgeable people to discuss the potential benefits, markets, and development costs, associated with bringing this new technology to the commercial marketplace. Included among the 110 participants were representatives from the Department of Energy, EPRI, GRI, gas and electric utilities, environmental organizations, gas turbine and fuel cell vendors, and other interested parties.

The conclusions of the Workshop participants were that:

- The technology should be developed to meet a verifiable market need and not for public policy reasons such as minimization of CO<sub>2</sub> emissions
- A market for 1-20 MW units appears possible in the near term
- Markets for large (>200 MW) central station plants with efficiencies of 75% or more may emerge after 2010 if the technology is proven to be reliable at the smaller scale
- Fuel cell cost and durability are the key technical issues.

The Workshop participants recommended that:

- DOE begin a formal program within existing ATS or Fuel Cell program activities to support the development of this technology
- A program plan should be developed to bring this technology to the point of commercialization
- DOE should contract for creditable, independent, cost and performance studies that are based on the preliminary cycle studies that have been completed
- Cost sharing of these activities from the private sector is necessary
- Communication efforts about the promise of this technology relative to market needs should be increased
- The Workshop should be repeated in the near future.