

**Combustion Turbine Operations Technical Forum  
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**Round Table Abstract:**

**How Emerging Technologies are Impacting Environmental Compliance for Existing Combustion Turbines**

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Natural gas fired combustion turbines supply clean, reliable energy to the US electric grid. However, the industry is not immune from regulations, to reduce environmental impacts to the air, land, and water. These pressures have resulted in an increasingly stringent, lengthy, and costly pre-construction permitting process for modifications and new units. Regulations such as the Clean Power Plan may further encourage the replacement of fossil fuel generation with renewable sources of energy.

Renewable energy technologies offer recognized solutions to reduce air pollution from power generation; however, they also have their own environmental costs embedded in their manufacturing processes, transportation, and operation. Other technologies that may result in reduced environmental impact include implementation of carbon capture and sequestration from fossil fuel generation, energy storage, and distributed generation. Once these technologies are demonstrated commercially and are shown to be economically viable, they will drive the selection of Best Available Control Technology for future pre-construction combustion turbine permitting projects and thus substantially impact options available for modifications and new projects.

This presentation will compare the environmental impacts of several key renewable energy generation options, storage technologies, and distributed generation to those of natural gas combustion turbine facilities. Considering the long-term outlook for natural gas-fired power plants, we will also explore how the implementation of these technologies in the coming years may impact permitting and environmental compliance requirements of existing combustion turbines.

**Keywords:** environmental impacts, air pollution, environmental compliance, renewable technologies