



June 11, 2009

Honorable Chairman Markey and Members of the Committee:

Thank you so much for hearing my testimony before the Select Committee on Energy Efficiency and Global Warming. Enclosed are my responses to your questions, as well as a general overview of “Turbine Efficiency Improvements of Existing Power Plants”. **As you recognize, turbine technologies which improve the efficiency of existing power plants are an essential part of our energy independence plan.** Just as it is important to improve efficiencies on the consumption side of electricity (dishwashers, air conditioners) it is equally important to improve efficiencies on the production side of electricity—or the efficiency of turbines.

With over 3500 years of turbine experience, Florida Turbine Technologies would like to be a resource for you and other members of Congress on energy issues. We are excited to use our knowledge to help to solve our nation’s energy crisis.

Sincerely,

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1. What steps can Congress take to reduce the time to deploy smart grid technologies?

While Florida Turbine Technologies (FTT) does not specialize in smart grid technologies, Page 4 of the attached “Turbine Efficiency Improvements for Existing Power Plants” presentation shows that 65% of available energy is lost to turbine inefficiencies (“conversion losses”) in contrast to the 3.1% loss for transmission and distribution (T&D). FTT’s Spar-Shell Upgrade Kit can be retrofit into existing gas turbines to improve turbine efficiency by 5% and deliver 15% more power.

2. How much will the whole development of a smart grid cost? How should these costs be allocated?

FTT cannot estimate the development cost of a smart grid, but estimates that an extremely effective technology such as the Spar Shell Upgrade Kit would cost approximately \$12 million to develop. Once the Spar Shell Blade concept is proven in a test engine, it will become a commercially viable product and create thousands of long-term technology jobs.

3. Do you support the inclusion of nuclear energy as a source of low-carbon electricity?

Turbine efficiency is equally important for nuclear power plants, since steam turbines are the prime mover for the generators in a nuclear plant. Improvements to steam turbine efficiencies would benefit nuclear and fossil fuel powered plants.

4. How does the problem of intermittency in renewable energy add to the challenge of a smart grid?

The intermittent characteristic of renewable sources can be overcome with the efficient and quick start and shutdown characteristics of natural gas fired turbines. For this reason, gas turbine efficiencies will become even more critical to our energy future.

5. The hearing pointed out the need for regulatory policies that reward electric utilities for their investment in smart grid technology and energy efficiency. Can you suggest ways that Congress can help make this happen?

Year over year efficiency improvements for all energy production or consumption equipment should get the same tax advantages as renewable energy sources. This will encourage existing plants to incorporate modern technologies.

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6. What changes need to be made to the regulatory system for electric utilities that will provide them with incentives to invest in the energy efficiency of their customers? Are there ways to establish a market for other companies either working with the utilities or on their own, to make money by reducing the electricity use of consumers and business?

Tax credits for turbine efficiency improvements will lower operating costs for utilities, in addition to saving energy. Regulations regarding the energy efficiency of businesses and other energy consumers would be most effective when directed toward the consumers, instead of encouraging utility involvement.

7. What can we do to provide regulatory incentives for businesses and customers to act to reduce their own use of electricity and adopt smart grid technologies?

Businesses and customers should be given incentives to reduce electricity consumption and to produce energy from waste, if applicable. Many existing industrial waste streams are potential sources of energy. Additionally, combined heat and power systems exceed 90% efficiency, and should be encouraged for businesses with large heat requirements.

8. What can we do to encourage electric utilities to conserve energy by operating more efficiently?

Congress should enact legislation to give utilities financial incentives to run efficiently. Year over year turbine efficiency improvements should get the same tax advantages as renewable energy sources. Turbine efficiency improvements lead to more power with the same equipment, one-third of which is carbon-free and fuel-free.

Additionally, Congress should encourage investment in energy efficient technologies. Because of the high cost of power outages, utilities are risk-averse, and new technologies are only commercially viable after the completion of extensive test programs. These programs should be a priority in future energy funding, leading to long-term, high technology American jobs.

See attached overview, “Turbine Efficiency Improvements for Existing Power Plants”.

9. Moving to a smart grid will be very expensive and take time, what are the first steps we should take in developing a smart grid?

The first steps toward smart grid development and turbine efficiency improvements should be investment in technology and gradual adoption of Cap and Trade policies. This will create technology jobs and retain our nation’s position as a leader in energy technology.

