

Testimony of Capstone Turbine Corporation

“Made in America: Increasing Jobs through Exports and Trade”

U.S. House of Representatives

Subcommittee on Commerce, Manufacturing and Trade

March 16, 2011

Submitted by James Crouse

Capstone Turbine Corporation

Executive Vice President, Sales and Marketing

Summary

Capstone Turbine Corporation, headquartered in Chatsworth, CA, is the world's leading manufacturer of microturbine energy systems. A microturbine is a small combustion turbine used to generate electricity at the location of the end use customer. Capstone microturbines are also used as range extenders for hybrid electric vehicles. Customers use our systems to save money through reducing their energy usage. Another benefit of microturbines is that they produce very little emissions. Capstone microturbines can run on fossil fuels, including abundant natural gas, in a clean and efficient manner, as well as biogas, diesel, biodiesel, propane and kerosene.

Capstone Turbine employs approximately 200 highly skilled American workers in our manufacturing facilities outside of Los Angeles. We produce approximately 80 percent of the world's microturbines. Most of the balance is also manufactured in the United States, making microturbines a unique American manufacturing success story. This is not a product that we are buying from China; China is buying it from us.

We sell 95 percent of our product outside of California, and 70 percent of our product overseas. We believe that the key to increasing exports is by strengthening the domestic market for clean and efficient energy technologies. A strong domestic market would enable newer companies like ours to increase production capacity that will make them more competitive overseas. Capstone Turbine sees value in adopting a long-term energy policy in the United States as a means of not only protecting our environment, but also as a way to decrease reliance on foreign oil while creating American jobs. Simultaneously the Administration and

Congress should finalize the pending Free Trade Agreements and initiate new FTAs with critical markets such as Brazil.

Introduction

Capstone Turbine Corporation respectfully submits this testimony to the “Made in America: Increasing Jobs through Exports and Trade” hearing of the House Subcommittee on Commerce, Manufacturing and Trade. As the leading global manufacturer of microturbine energy systems, Capstone Turbine has valuable insight into what it takes to compete globally in a growing industry characterized by technological change and innovation.

Although we were invited to testify on behalf of the Chairwoman and Ranking Member, our power generation systems can be found in nearly every state represented by the Members of the Subcommittee.

What is a Microturbine?

A microturbine is a small combustion turbine used to generate electricity at the location of the end use customer, rather than at a central utility power station. Generating power at the user’s location prevents electricity losses over power lines, while providing the user with reliable energy even in the case of blackouts or brownouts. Capstone microturbines are also used as range extenders for hybrid electric vehicles. In this application the microturbine uses natural gas or diesel fuel to extend the operating range of electric cars, buses, trucks and boats with considerably lower emissions than other range extending products.

Customers use our systems for a variety of reasons. The chief reason is to save money through reducing their energy usage. By utilizing the exhaust from the microturbine to make hot or cold water, businesses can cut their energy costs up to 50%. The use of both electric and thermal energy simultaneously from a single fuel source is called combined heat and power (CHP). Some of our systems also provide cooling, known as combined cooling heat and power (CCHP).

Another benefit of microturbines is that they produce very little emissions, both in terms of criteria pollution and greenhouse gases. Capstone's unique technology makes clean and efficient combustion possible. In so doing we are able to use fossil fuels, including abundant natural gas, in a clean and efficient manner. Other systems burn biogas, which is renewable and creates no greenhouse gases. Microturbines are so fuel-flexible that they can cleanly and efficiently burn diesel, kerosene and propane as well. Essentially, we use whatever fuel the customer has available to provide a local source of reliable power and heat. Capstone microturbines utilize our patented air bearing technology that requires no lubrication and no coolants. As a result, the microturbine requires very little maintenance compared with a reciprocating engine.

Who Uses Microturbines?

Our customers can be found all over the world in a variety of industries. We classify our four primary markets as resource recovery which includes the oil and gas industry as well as renewable biogas; energy efficiency, or combined heat and power; secure power, such as

hospitals or data centers; and hybrid electric vehicles. Microturbines provide value to customers in each of these markets for different reasons. For example:

- **Oil & Gas:** In the oil and gas sector, companies use our product to power their installations, oftentimes in remote locations. The oil and gas industry prizes reliability and a microturbine is highly reliable since it has only one moving part, does not require lubrication or coolants, and has only one maintenance interval per year while a traditional engine generator can have hundreds. Additionally, generating power with microturbines can eliminate their need for air permitting due to our low emissions.
- **Energy Efficiency:** Our CHP and CCHP customers are typically commercial businesses such as office buildings, retailers, and hotels. These users adopt CHP in order to save money on energy costs. By increasing their efficiency through making both electric and thermal energy with a single fuel, businesses can save considerable money.
- **Renewable Power:** We provide renewable energy to landfills, wastewater treatment facilities, and farms. By burning methane from waste we can turn a very harmful gas into clean power and provide a revenue stream to the customer.
- **Mobile Products:** Microturbines can be installed on buses, trucks, and marine craft to serve as a battery charger in a hybrid configuration, allowing the vehicle a longer range on battery power. When the onboard batteries get depleted, the microturbines automatically turn on to re-charge them.

American Manufacturing

Capstone Turbine employs approximately 200 highly skilled American workers in its manufacturing facilities outside of Los Angeles. In addition to being an energy company we are also a technology company. With over 120 patents, Capstone Turbine has used innovation to develop a technology that did not exist prior to our founding. We produce approximately 80 percent of the world's microturbines. Most of the balance is also manufactured in the United States, making microturbines a unique American manufacturing success story. This is not a product that we are buying from China; China is buying it from us.

Capstone Turbine is a California company that ships 95 percent of its product out of the state, and 70 percent of its product overseas. We are a small but a growing company – our last year's revenues were approximately \$65 million, but we have grown 40 percent a year, year-on-year, for three straight years. We anticipate a similar growth rate for the current year.

Foreign Markets Present More Opportunities than the Domestic Market

We export because, for a variety of reasons, that is where the markets are. Our company would simply not survive without foreign buyers. We sell in over 50 countries, both developed and developing, on six continents. In many cases overseas markets are stronger than our home market in America. Our company and the microturbine product are new relative to traditional power generation products such as engine generators, many of which are produced cheaply overseas. Thus the first cost of our product is much higher than it is for an engine generator, although our lifecycle cost is oftentimes lower due to the microturbine's need for less maintenance. The only way to bring down the cost of the product over time is to increase

production volumes. A strong domestic market for alternative energy would allow Capstone Turbine to achieve economies of scale in its manufacturing process.

Europe is a particularly strong market for Capstone Turbine because government policies there provide market pull for clean and efficient power. Many European countries have adopted feed-in tariffs, which allow the owners of clean energy systems to sell their power to the electricity grid, providing another revenue stream for the project that shortens payback. These policies also have the benefit of being long-term, thereby sending customers and lending institutions a clear signal that enables them to make buying and financing decisions with confidence.

The United States Needs a Long-Term Energy Policy

Capstone Turbine sees value in adopting long-term energy policy in the United States as a means of not only protecting our environment, but also as a way to decrease reliance on foreign oil while creating American jobs. The current system in America is a patchwork of policies and regulations that make certain areas viable for distributed generation and others much less viable. There is little policy support for energy efficiency and combined heat and power despite the tremendous value to society and the economy. In 2008, the Oak Ridge National Laboratory released a report that said a large-scale expansion of CHP could provide 20% of the U.S. generating capacity by 2030, generating \$234 billion in new investment and create nearly 1 million highly-skilled, technical jobs in America. Environmentally, the United States can expect a reduction of CO2 emissions by more than 800 million tons per year, the equivalent of taking more than half the nation's current passenger vehicles off the road, with

such an expansion. Energy efficiency combined heat and power makes sense regardless of where one stands on climate change. Making American businesses more efficient allows them to decrease operating costs and be more competitive in the marketplace.

A primary example of how energy efficient microturbines can deliver economic savings is our combined cooling heating and power plant installed at the Ronald Reagan Library in Simi Valley, CA. When the library opened the Air Force One pavilion, the extra electrical demand would have required the utility company to build another transmission line to the building costing millions of dollars. Instead, the library opted to build its own power plant with sixteen microturbines running on natural gas, which also produce cooling and provide the building's hot water in a single system. As a result, the library saves hundreds of thousands of dollars annually in energy costs.

Recent discoveries of natural gas in America will be able to provide our country with an abundant source of domestic energy at stable prices for a long time to come. The oil and gas industry is our largest market, and our company is growing as more and more oil and gas companies deploy microturbines to provide reliable power at their production and transmission sites. Recently, Capstone Turbine sold its largest-ever order in the United States to a major American producer. In total, nine megawatts of microturbines will provide clean and green prime power to central processing facilities and metering stations at remote well sites in the Eagle Ford Shale play in south Texas. The microturbines, fueled by pipeline quality gas, will produce electricity to provide all power to the onsite equipment, including heaters, pump motors, circulation pumps and distribution panels.

Capstone Turbine would like to make the subcommittee aware of HR 6515, “The American Microturbine Manufacturing and Clean Energy Deployment Act of 2010.” This bill was introduced by Congresswoman Linda Sanchez during the last Congress. The bill sought to give microturbines parity in the tax code with other clean energy technologies by raising the investment tax credit to 30 percent and removing the existing \$200 per kilowatt cap. By limiting the total expenditures to \$250 million until the expiration of the credit in 2016, the bill provided an economical means of creating American jobs while installing clean energy and stimulating exports. As Congresswoman Sanchez stated in her floor speech, “Over 90 percent of the world’s microturbines are manufactured right here in the United States by American workers. However, most of these systems are exported because our own incentive structure has failed to encourage domestic adoption. My bill would strengthen a homegrown, domestic industry that will create good jobs while giving us cleaner air.”

Helpful Forms of U.S. Government Support

Capstone Turbine has received several research and development grants from the Department of Energy. Current programs include developing a microturbine capable of operation on syngas made from agricultural waste, and developing a larger, more efficient microturbine. Our 200 kilowatt microturbine, now in full scale commercial production and a significant revenue contributor for our company, was also developed with assistance from the DOE. However, the lack of a long-term energy policy that promotes energy efficient distributed generation such as combined heat and power has meant that the United States is not a strong market for our product. We feel that there is a policy disconnect for clean energy such that

R&D funding is available and paid for by American taxpayers, but that foreign countries receive disproportional benefit when the clean energy is installed there rather than here at home.

As a small company, we have made use of the export promotion programs of the U.S. Department of Commerce's International Trade Administration (ITA). In particular, Capstone Turbine has benefited from participation in trade missions overseas, such as Secretary Locke's 2010 trade mission to China and Indonesia. Having the support of the U.S. government carries significant weight in markets such as China where many of our customers are owned or controlled by the Chinese government. ITA's Foreign Commercial Service has been effective in setting up meetings with potential distributors and customers.

As a manufacturer, Capstone Turbine has been negatively impacted by import tariffs imposed on our equipment entering certain markets. We urge the Administration and the Congress to finalize the Free Trade Agreements with Colombia, South Korea and Panama. Colombia and South Korea have enormous potential for Capstone Turbine. Lowering or eliminating tariffs would drive more business in those markets. We also encourage the Administration and Congress to embark on new FTAs with markets of critical significance such as Brazil. Brazil is making considerable investments in power generation to improve grid stability and provide power throughout the country. Brazilian firms are in need of reliable power and natural gas is becoming abundant and cost-effective, making Brazil an ideal market for Capstone Turbine. However, the current tariff structure adds considerable cost to our projects in Brazil that have to be passed to the customer, causing many projects to not go forward.

Conclusion

Capstone Turbine thanks the subcommittee for the invitation to provide this testimony. We feel strongly that the key to increasing exports and making American energy companies globally competitive is to set long-term domestic energy policy. The United States should be a leader in the field of clean energy. With the dramatic rise of China as both a producer and a consumer of alternative energy, the United States must act quickly and decisively to regain global leadership. Homegrown American technologies such as microturbines can make significant social and economic contributions but need a level playing field with other energy sources.