Written Testimony of
Timothy J. Richards
Managing Director – International Energy Policy
General Electric Company
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I would like to thank Chairman Rush, Ranking Member Radanovich, Vice Chairwoman Schakowsky and the members of the Subcommittee on Commerce, Trade & Consumer Protection for holding this hearing on "Growing U.S. Trade in Green Technology." This is a critical area for the United States that will define this country's ability to remain an innovative 21st century manufacturing nation. The need for more efficient and lower emissions technologies is not confined within the United States. The entire world needs these technologies, and the U.S. government and U.S.-based firms must consider that most of the demand for these cleaner technologies will come from abroad. For example, the U.S. Energy Information Administration expects that total "worldwide marketed energy consumption" will grow by more than 33% between 2010 and 2030 and that fully 92% of that growth will occur outside of the United States. Moreover, environmental policy is likely to require that an ever-increasing portion of that investment be in cleaner, more efficient products and services. The President has rightly committed the U.S. to be the global leader in cleaner energy. The U.S. is in a strong position to succeed in this endeavor, but to do so will require a combination of continued private sector innovation and investment, and effective, stable government policy.

There are many different policy factors that affect U.S. trade and competitiveness. Education, taxes, R&D spending, patents, human capital and immigration all have an impact. In this testimony I will address three critical themes for promoting U.S. exports:

1) The foundation for successful clean energy exports is robust domestic demand for renewable energy technology. Such a foundation will support long-term investment in the sector and build economies of scale.
2) Export competitiveness requires a commitment to competition here and abroad. The U.S. can lead in this effort by negotiating agreements to eliminate barriers to trade, rejecting protectionism and ensuring the protection of intellectual property rights in order to build truly competitive industries.
3) The U.S. government can assist the private sector by organizing itself to actively promote competitiveness and exports.

GE and Wind Industry Background

General Electric is succeeding in creating and selling cleaner and more efficient technologies across the globe. We have invested heavily in our ecomagination™ products, including high efficiency gas turbines, technologies for smart grids, coal gasification, nuclear power, solar photovoltaics, efficient aircraft engines and hybrid locomotives. No single technology better illustrates this success than our wind turbines, and this testimony will therefore focus primarily on wind turbines as a core renewable energy technology. Our company has sold and installed over 10,000 1.5-megawatt (MW) wind turbines. We have grown to become the second largest wind turbine manufacturer in the world in terms of number of turbines sold and are expanding into new product areas such as offshore wind turbines.

The energy business is a scale-driven business. Time horizons are measured in decades; capital investments in billions, and suppliers and competitors engage globally to deliver the lowest unit cost. Competitiveness and leadership in this industry require a long-term, sustained and highly committed effort. It requires massive investment, discipline, and vision that spans beyond the next quarter, the next fiscal year, or the next election cycle.

Over the past four years, the U.S. has been at the forefront of renewable energy, and that is particularly true of wind energy. A few years ago, domestically manufactured products accounted for less than 25% of the wind turbines and components used in U.S. wind projects. That figure is now approaching 50% with current manufacturing announcements. The U.S. wind industry hit its high water mark to date in 2008, when over 8.5 gigawatts (GW) of wind power were installed, enough to power approximately 7 million homes. According to the American Wind Energy Association (AWEA), 2008 industry investment reached $17 billion and created more than 35,000 jobs. The 55 new facilities that came online, were announced, or expanded, increased our nation's total wind industry supply capacity by 50%.

That capped a three-year run, where the U.S. wind industry added over 16GW of power and brought total employment in the industry to 85,000 jobs. Wind energy is clean energy, and in the U.S. wind power avoids the emissions of 28 million tons of carbon dioxide from traditional power plants annually – equal to taking six million cars off the road.

GE has worked very hard to play a central role in the cleaner energy revolution, and our renewables business has grown dramatically to keep up with growing U.S. and global demand. Since entering the industry in 2002, GE has invested over $850 million in renewable energy technology and production.

Wind energy lends itself to a localized manufacturing base and supplier network, and our U.S. business growth has therefore translated into new American jobs. In the U.S., GE employs more than 2,000 people in our Wind and Solar businesses. These include wind turbine manufacturing jobs in Pensacola, Florida; Greenville, South Carolina;

Salem, Virginia; Erie, Pennsylvania; and Tehachapi, California. They include solar manufacturing and professional jobs in Newark, Delaware; Montague, Michigan; and Golden, Colorado. And they include professional jobs at our headquarters in Schenectady, New York, where since 2007 we have added over 300 jobs in Engineering, Project Management, and Services to support our Wind and Solar businesses. In addition, more than 4,000 sub-supplier jobs have been created in the U.S. to support these endeavors.

At that high water mark in 2008, the U.S. briefly led the world in wind energy production and cumulative wind power generating capacity. Today, the story is much different. In the last year, the world has changed a great deal. With a slow-down in electricity demand, policy uncertainty, and lower natural gas prices, the U.S. is projected to install about 5GW of wind in 2009, or about half of what was installed in 2008. The American Recovery and Reinvestment Act (ARRA) might stir a couple of more gigawatts of installs, but even if the stimulus fulfills expectations, our projections show that the U.S. will still move from #1 to #3 in new wind installations, behind the EU and China, both of which have consistent, long-term policies to support renewable energy deployment.

For the wind industry, the impact of the U.S. stimulus will fade over the next few years. During that period, 2010-2013, we project that the U.S. wind industry will only average about 4GW of installations a year, half of what the industry delivered in 2008.

Creating a Robust Domestic Renewable an Cleaner Energy Sector

Given the current challenges in the U.S., the first priority for maintaining a dynamic cleaner energy industry is to restore domestic demand. Robust domestic demand for renewable and other environmentally friendly technologies is necessary to achieve the economies of scale that will drive down costs and support a full-fledged U.S. manufacturing base. This strong domestic capability, in turn, will provide the underpinning for strong exports.

Critical components of policy in this area are stable incentives, such as renewable energy tax credits, and the development of binding national renewable energy standards along with cap and trade legislation that establishes mandates and incentives. Comprehensive U.S. legislation that attaches a value to greenhouse gas emissions reductions is an essential means to achieve the adoption and utilization of cleaner products and services.

U.S. policies currently in place to support renewable energy are insufficient to counter weak investor confidence, and they fall far short of incentives now being put in place by other nations. As history has shown, technology will follow the promise of future commercial sales. The current trajectory would suggest the future technology and expertise in the renewables industry would be concentrated outside the U.S.

Stable Tax Incentives

For several decades, forward-thinking U.S. government policy has helped support the spread of clean energy and the economic opportunity it brings. The federal Investment Tax Credit (ITC) and Production Tax Credit (PTC) have helped companies and investors large and small bring highly innovative technologies to market that otherwise may not have had a chance.

These policies, standing alone, are an incomplete solution. The stimulus package extended both the PTC and ITC for renewable energy. The PTC is currently set at 2.1 cents per kilowatt-hour (kWh) for the first ten years of a wind facility's life. However, the availability of these tax credits has been unstable. Short-lived tax credits have led to a "boom-bust" pattern in the wind industry; when the production tax credit expired at the end of 1999, 2001 and 2003, wind power installations declined by 73-93%, with resulting detrimental effects on U.S. supply and manufacturing chains.

Many European countries on the other hand have made a concerted effort to develop stable tax and investment policies, and these nations now lead the world in renewable energy companies. The cleaner energy sector in Germany, for example, has benefited from a continued stable policy framework that includes investment tax incentives and feed-in-tariffs, among other policy tools. The E.U. is by far the largest exporter of wind turbines, while the U.S. is a large net importer of wind turbines, having imported $2.5 billion in 2008 while only exporting $22 million. Large domestic demand explains some of that huge import bill, but companies simply have not invested in the U.S. as much as they could have because the policy environment was so unpredictable. Tax credits and the complementary measures intended to ensure growth in the installation of cleaner energy technology solutions – along the lines of the grants included in the ARRA -- should be a permanent part of U.S. renewable energy policy.

Federal Renewable Energy Standards (RES)

More than thirty states across the U.S. have adopted Renewable Portfolio Standards (RPS) or renewables targets that support installations of renewable energy and the creation of tens of thousands of jobs. These state-based RPS policies, while helping to create individual pockets of renewable energy growth, are not sufficient to provide the strong national message and system that can maximize our potential to realize cleaner and more efficient energy deployment.

The adoption of a robust near- and longer-term Federal RES would facilitate the development of a stronger domestic industry to meet a growing demand for renewable electricity. Other nations have taken the policy lead in this area: China recently announced a goal to produce 15% of its electricity from renewable sources by 2020; the E.U. is committed to 20% renewable electricity production by 2020 and 60% by 2050; the recently elected Democratic Party of Japan has announced a 10% renewable electricity mix by 2020 on top of their already strong commitment to

nuclear energy. Despite the fact that many of the world's major economies have set or at least are openly debating RES policies, the U.S. has yet to put any strong renewable requirements into federal law. The setting of binding targets and goals, as part of a comprehensive policy approach at the federal level including appropriate incentives, would solidify domestic demand for green technology solutions. Domestic demand will then spur additional production capacity, facilitating the export of these goods.

AWEA has stated that the creation of a federal RES policy would be instrumental in generating more domestic jobs and that the status quo of state policies could actually hamper job growth and cause a plateau over the next decade. A study conducted by the Department of Energy in 2008 noted that achieving 20% wind energy production by 2030 would result in the support of more than 500,000 jobs in the industry and related sectors. The Solar Energy Industries Association (SEIA) and Navigant Consulting estimate that the solar energy industry employed in 2008, directly and indirectly, about 80,000 people – with over 15,000 jobs added during 2007-2008.

Reducing Trade Barriers

In order to stimulate domestic investment in cleaner energy technology and help American firms meet the world's need the world's need of this technology, the U.S. must lead global efforts to stimulate trade in environmental goods and services. Even as countries around the world seek to accelerate deployment of energy sources that enhance energy security and reduce emissions, many governments continue to maintain barriers to trade in the goods needed to realize those projects. Carbon-intense energy sources are often less expensive than cleaner alternatives, and the cost advantage that carbon-producing energy sources enjoy will only widen if trade in cleaner alternatives is restricted and the development of large-scale manufacturing is inhibited. Liberalization of trade for green products and services offers a rapid, high-impact step governments can take to lower the cost of cleaner energy technologies, resulting in more economically viable solutions for reducing greenhouse gases.

Challenges

According to the U.S. International Trade Commission (USITC), five nations (Denmark, Germany, India, Japan and Spain) exported a combined 91% of wind turbines in 2008. Similarly, more than 93% of wind turbine production is concentrated among firms based in seven nations: Denmark, U.S., Spain, Germany, India, China and Japan. The concentration of wind turbine production reflects the benefits of economies of scale inherent in the manufacture of sophisticated, technology-intensive products. This does not mean wind turbine production will not expand to additional countries – in fact, such expansion is occurring. However it does indicate how counterproductive it is to maintain or create tariff barriers.

As of July 2009, a majority of WTO member nations still impose tariffs on wind turbines and solar panels. For wind turbines, tariffs are levied by nearly 60% (91 of 153) of the countries, with a mean tariff of 7.4% and a median of 5.0%. The table below (Table 1) shows applied tariff rates on wind turbines imposed by the U.S. and our key trading partners. With manufacturers fighting to reduce costs and make renewable energy competitive with less environmentally friendly alternatives, it is difficult for any nation to justify the government imposition of these additional tariff costs.

The rapidly growing volume of green technology trade means that the total value of tariffs imposed is becoming quite significant. In 2008 trade in wind turbines and wind turbine parts reached nearly $6.6 billion, from $1.4 billion in 2003. The U.S. imported $2.6 billion of these products (approx. 39.2% of the world-wide total) and imposes an average tariff of 1.3% on its imports. The U.S. has an opportunity to lead by example in this area. If the world's largest economy and importer of wind turbines eliminated tariffs, many of our trading partners would consider following suit in order to stimulate their own economies and trading activity.

Table 1 – Wind Turbine Tariffs

Wind Turbine Tariffs	
Brazil	14.0%
Mexico	10.0%
China	8.0%
S. Korea	8.0%
India	7.5%
Russia	5.0%
U.A.E.	5.0%
E.U.	2.7%
U.S.	1.3%

Source: World Trade Organization, "Tariff Download Facility." HS Code: 850231. Accessed online, 24 September 2009. Brazil rate based on recent tariff rate change in Brazil.

In addition to tariffs, non-tariff barriers (NTBs) can serve as impediments to trade and are often even more destructive to greenhouse gas reduction goals and worldwide economic recovery than traditional tariffs. These barriers can take several forms: import bans, local content regulations, preferential contract bidding for domestic firms, restrictive technical standards, and government procurement restrictions, among others. Amid the global recession, many nations have instituted new NTBs. The table below highlights three recent NTBs in China, Canada and the U.S.

Table 2 – Recent Global NTBs

Country	NTB Type
China	Government procurement; preferential contract bidding; "Buy Chinese"
Canada	Local content restrictions; Quebec and Ontario
U.S.	Government procurement; "Buy American"

Source: News releases and legislative records.

China

China represents both a great opportunity, because of the country's need to find alternatives to traditional coal-fired power, and a competitive challenge in the field of environmentally friendly power generation products. The Chinese government announced a $586 billion stimulus package in November 2008 to shore up the nation's economy, but included a government procurement restriction. Dubbed the "Buy Chinese" policy, the stimulus mandated that "government investment projects should buy domestically made products unless they cannot be obtained in reasonable commercial conditions in China." At the same time, China has designated "Independent Innovation Products" and provides special procurement preferences for those products.

In June 2009, no foreign-owned wind turbine supplier was selected in a $7 billion wind turbine competition. Fundamental factors such as life cycle cost and investment rate of return were not considered in the evaluation process. According to the Chinese Wind Energy Association, only 24% of newly installed capacity in 2008 was sourced from abroad.

Canada

The Canadian province of Quebec applied a local content requirement for wind turbines in 2007, and Ontario may replicate the policy this year. The Quebec policy mandates that at least 60% of wind turbine development costs must be incurred locally in Quebec. In addition to being a difficult metric to track, concentrating development costs in a single province may lead to increased energy prices due to the reduced pool of suppliers and engineers.

Ontario passed its Green Energy Act in June 2009 and one of the provisions that is currently being finalized is the local content restriction. Foreign governments and corporations have requested it be limited to 10-15%, but some politicians in Ontario have called for a 60% level, analogous to Quebec. Analysts have already said that a stringent local content restriction can harm the economy of Canada's largest wind-power-producing province and increase overall energy costs for end-users.

U.S.

"Buy American" provisions were included in the American Recovery and Reinvestment Act of 2009. Although the final legislation exempted "relevant manufactured goods [that] are not produced in the United States in sufficient and reasonably available quantities," and required the U.S. to abide by its international trade obligations, Buy American provisions remained in the law. The stimulus earmarked $43 billion for green technology and thus the policies affecting its investment are quite significant.

Solutions

In order to prevent a reduction in the global trading of green technologies and to increase the competitiveness of American goods, the U.S. government should adopt a three-pronged solution. First, now is the time to roll back existing trade barriers on environmental goods and services and to prevent the application of new barriers through a binding Environmental Goods and Services Agreement (EGSA). Second, the U.S. needs to lead by example and reject protectionism by not including Buy American provisions in future legislation. Third, strong intellectual property rights protection must be ensured internationally so that the economic incentives exist to develop and deploy new, cleaner technologies, and export products based on those technologies.

U.S. Leadership to Adopt an Environmental Goods and Services Agreement

An EGSA to promote free trade in cleaner and more efficient technologies can make a critical contribution to the growth of U.S. exports in the sector. Countries should strongly consider the adoption of a distinct EGSA, outside of the currently stalled Doha Round negotiations. An EGSA would have the benefit of not being mired in the more controversial trade issues that lack broad support. The long-term goal of an EGSA should be universal WTO member participation in removing both tariffs and non-tariff barriers for an agreed list of goods and services. The path to realizing that goal may involve interim agreements in the interest of demonstrating progress and removing barriers as rapidly as possible. For instance, an initial agreement might eliminate tariff barriers only, be limited to an already agreed upon product list (for instance, the list developed by the World Bank in 2007) and be adopted by a subset of WTO members accounting for most current trade in these products. Subsequently, additional countries could sign on to the agreement, more products could be added and coverage could be extended to services and non-tariff barriers.

Reject Protectionism

Protectionism is a dangerous economic philosophy that will ultimately damage the reputation and competitiveness of the American economy. The G20 has repeatedly pledged to "reject protectionism in all its forms," and has largely followed through on this commitment. However, the temptation to close markets during these tough economic times has not subsided, and no country – including the U.S. – has been able

to resist instituting some protectionist measures in the past few months. The most glaring and disruptive example in the U.S. is the Buy American provision in the stimulus package. By applying these rules to the states, and limiting options for federal procurement, the Buy American provision in ARRA has delayed the spending of stimulus money and prevented job creation at a time when these jobs are sorely needed.

Water provides an illustrative example. The water industry in the U.S., which is supported by local communities, is closely intertwined with its Canadian counterpart. Due to the uncertainty of applying ARRA Buy American rules to state and local procurements, many cities across the country were not confident in how to spend their stimulus money, and so delayed implementing water projects that would have created much-needed jobs. Additionally, federal agencies such as the FCC and EPA must now issue waivers for certain products, adding a layer of red tape that delays the results that ARRA was intended to deliver. Finally, ARRA's Buy American provision adds confusion to already uncertain economic conditions by sending precisely the wrong signal to the global economy about the importance of a global marketplace. Because ARRA's Buy American provision generates confusion, creates a costly layer of bureaucratic red tape, and can disrupt productive economic relationships with our closest allies, it should not be repeated in future legislation.

Assure Intellectual Property Rights Protection

Further research and development is necessary to create new innovative technologies and enhance existing clean energy technologies, and the most important set of government policies for promoting such innovation is the protection of intellectual property rights. Some developing countries have proposed that a post-Kyoto U.N. climate agreement should include provisions allowing the forced transfer of climate change-related intellectual property. Such measures would be counterproductive from the point of view of combating climate change because they would deter innovation and technology deployment. In addition, they would be severely detrimental to U.S. export interests.

Intellectual property rights protection does not only promote the initial innovation. It also encourages commercial deployment of existing technologies. Companies will be careful to avoid licensing technology or even selling products to customers in countries where those customers could reverse engineer, take and use the intellectual property rights.

Comprehensive U.S. Government Export Support

The U.S. government can assist the private sector by reorganizing itself to actively promote competitiveness and exports in cleaner energy goods and services. The federal government is in a position to facilitate the private sector's growth by undertaking two sets of actions: 1) export finance reform and 2) the coordination of American advocacy for cleaner energy exports.

Export Finance Reform

The U.S. Export-Import Bank (Ex-Im Bank) plays a vital role in financing U.S. exports. This long-standing support has been increased in recent years and has been essential in bridging financing gaps during the recent credit crisis. For fiscal year 2008, the Ex-Im Bank authorized more than $14.4 billion through its various programs, representing a 22% increase over the prior year. However, foreign countries often have simpler rules and regulations concerning their export credit agencies and American firms currently are often disadvantaged due to our restrictions.

A preliminary set of export finance reforms should include a shift towards a national interest test for Ex-Im Bank financing and the retooling of U.S. cargo preference requirements. The difficulty and expense of tracking content by nation in an increasingly global economy and the decreased level of competition for suppliers often leads to higher prices for U.S. goods, thus rendering them less competitive abroad. A shift towards a national interest test would reduce compliance costs and allow domestic exporters better access to Ex-Im Bank financing. A national interest standard could be especially beneficial to small exporters who lack the expertise and resources to undertake such complex compliance.

The national interest test should be structured so that exporters can access financing from the Ex-Im Bank if the goods exported would further our nation's interest and influence in a given sector or industry. This would prevent situations in which financing is denied because local content criteria are not met but the U.S. has a compelling strategic interest to compete in the sector. This is especially relevant in the green technology industries where the U.S. faces foreign competitors with strongly supportive government policies.

The parallel issue of cargo preference requirements, as applicable to the Ex-Im Bank, should also be addressed and modified. No other country has cargo preference requirements associated with this type of financing.

Coordinated Advocacy for Exports

Export advocacy should be a key element of U.S. international engagement and be featured in Presidential, cabinet-level and legislative interactions with foreign counterparts. European and Asian countries have successfully implemented this strategy and have opened access to new markets as a result of it. Similarly, an effort to make commercial advocacy for cleaner technologies a priority for all agencies should be led by the Commerce Department. Both the U.S. & Foreign Commercial Service and the U.S. Trade & Development Agency should be strengthened, with a focus on increased staff and budgets in embassies abroad. These investments would yield benefits to the U.S. economy that are multiples of the original funds. Expanded participation in trade and industry shows would also help promote American exports.

France and Canada, for example, spend almost ten times more than the U.S. does in trade show participation, relative to the size of their national budgets. Finally, the United States should strengthen the international outreach of U.S. technical agencies so that they can seek international standards that will promote, not inhibit, American exports.

Conclusion

Developing competitive exports of cleaner energy technology goods is critical for the viability and growth of the U.S. economy. The foundation for this competitiveness starts with creating strong domestic demand for these technologies. Domestic demand will spur long-term investment in the sector and result in the economies of scale needed for a healthy export industry. In conjunction with a strong domestic sector, the U.S. government can lead by example in eliminating barriers to trade, rejecting protectionism and ensuring the protection of intellectual property rights. Policies that adhere to those criteria will foster innovation and global trade. Furthermore, government reorganization to promote the competitiveness of American exports would give exporters a boost in securing new orders overseas. Addressing these central and critical themes would result in major progress towards a healthy and vibrant export-focused green technology sector.

I would like to sincerely thank the Chairman, Ranking Member, Vice Chairwoman and members of the Subcommittee for their time and attention this morning. I look forward to your questions and comments.