
Green Mercantilism: Threat to the Clean Energy Economy

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In May 2012, the U.S. Department of Commerce preliminarily ruled in favor of a coalition of U.S. solar panel manufacturers' petition against China for illegally exporting solar panels at below market rates. A coalition of U.S. wind turbine manufacturers filed a petition asking the Administration to take action against similar Chinese and Vietnamese wind subsidy policies.¹ Both cases are just the latest complaints against competitor nations that use *green mercantilist* policies to gain unfair competitive advantage in the global clean energy industry.² Some argue that America should not only turn a blind eye to such policies, but even embrace them because they lower the price of clean energy imports for the United States, helping both American consumers and the fight against climate change. But the long-term harm of these policies greatly outweighs the short-term benefits. Not only do green mercantilist policies hurt clean energy producers in the United States, they also limit the incentive to invest in innovative, next-generation clean energy technologies, which hurts, not helps, the global community's ability to reduce the emission of greenhouse gases.

“Green mercantilism”—the adoption of policies that give countries an unfair advantage to boost exports and limit imports of clean energy technologies—is a major departure from rules-based clean technology trade. It's represented by “beggar-thy-neighbor” policies, including lax IP enforcement, forced technology transfer, export subsidies, discriminatory standards, barriers to imports, and preferential treatment of domestic firms by their parent governments.³

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Green mercantilism is no different than mercantilism in other high-wage, innovation-based traded sectors. The ITIF report *The Good, The Bad, and The Ugly (and the Self-Destructive) of Innovation Policy: A Policymaker's Guide to Crafting Effective Innovation Policy*, details how a range of countries including China, Brazil, and India have put in place an array of policies to grow their innovation economies, many of which violate the spirit or the letter of the law of the World Trade Organization (WTO). The report argues that countries should implement more “good” innovation policies—those that benefit both the country and the world—and limit or eliminate policies that fall under the “bad” and “ugly” categories that hurt the world economy.

Like other innovation mercantilist policies, green mercantilist policies hurt other nations but often benefit the country that practices them, especially in the short-run and especially for the nation's producers (as opposed to its consumers and taxpayers). Green mercantilism can help nations gain global market share of higher value-added industries like solar and wind energy and lead to higher than average wage job creation. But some green mercantilist policies, like unfair subsidies and export dumping (selling below fair-market price), provide foreign consumers with lower cost goods.

As a result, many U.S. neo-classical economists, and the policymakers that subscribe to their views—who are largely concerned only with short-term consumer welfare—argue that if these other nations are misinformed enough to subsidize American consumers with cheaper clean energy products we should sit back and reap the benefits. Likewise, many in the non-traded portion of the clean energy industry (e.g., solar panel installers) agree, arguing that subsidized products lead to expanded demand for their services and the jobs related to that. Finally, enamored by the short-term benefit of artificially lower clean energy prices (e.g., a few more solar panels installed in the United States), some clean energy advocates turn a blind eye toward or even welcome green mercantilist policies, especially those designed to directly or indirectly subsidize exports. From their perspective, putting a tariff on clean energy imports equal to the amount of unfair foreign subsidies simply increases prices and reduces clean energy deployment. For them mercantilist, cost-reducing policies are no different in benefit than subsidizing consumer purchases of clean energy. Both make clean energy cheaper and expand domestic demand; therefore any attempt to scale back green mercantilism is seen as akin to cutting domestic clean energy incentives and subsidies.

Not surprisingly this perspective leads some clean energy advocates to oppose U.S. action against green mercantilism. For example, in response to the United States solar manufacturer trade dispute with China, Jigar Shah, President of the Coalition for Affordable Solar Energy, publicly urged the solar manufacturers to withdrawal their petition because the potential consequences of the dispute, such as tariffs levied against Chinese solar exports, would “have a very damaging effect on the solar industry in the United States and would fundamentally undermine many years of effort by all of us who care about the future of solar power.”⁴

But green mercantilism, like innovation mercantilism generally, is bad, not only because it distorts the current allocation of clean energy production, but also because it can

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significantly limit needed clean energy innovation. Clean energy will never be more than a niche market product until its cost of production (including the costs of energy storage) become equal to or lower than fossil fuels with similar or better performance. If the goal is to create a global energy system that is largely carbon free, continual dependence on subsidies, whether domestic and legitimate or foreign and mercantilist, is not the way. Driving innovation is. While green mercantilist practices may boost short-term deployment, these practices reduce the incentives and ability of firms, especially more innovative ones in the United States and other leading nations, to invest in fundamentally better clean energy technologies. As a result, a global clean energy industry propped up by green mercantilist policies may not only produce near-term growth in lower-quality, higher-cost technologies that cannot compete with fossil fuels without sustained government subsidies, it also makes it much more difficult to develop more advanced and competitive alternatives.

Moreover, by reducing the economic advantages to fair-playing nations from clean energy innovation investments, green mercantilism erodes the political will to support clean energy innovation policies. We have seen that clearly in the United States, where the willingness to invest in clean energy innovation has waned significantly over the last few years in the midst of many high profile bankruptcies (e.g., Solyndra, Evergreen Solar, and Konarka) which in part were due to Chinese mercantilist practices. Why invest public dollars if mercantilist nations like China will get the lion's share of the jobs? As such, green mercantilism not only rewards the wrong technologies, it reduces the motivation of more innovative nations to make the kinds of investments needed to drive clean energy innovation. This makes the quest for low cost clean energy not easier, but much more difficult (as if it weren't difficult already).

As this report also shows, countries have an alternative path that can support the clean energy technologies the planet needs while building national competitive advantage through increasing investments in their innovative capacity and reforming their energy policies. But to get there, nations that adhere to "good" clean energy innovation policies need to fight back against green mercantilist policies, while also seeking clean energy free trade agreements and other international mechanisms to expand clean energy innovation and trade worldwide. Only this mix of policies—and not a perpetuation of international green mercantilism—will drive needed innovation and produce the affordable clean energy the world needs to mitigate climate change.

WHAT IS GREEN MERCANTILISM?

Green mercantilism is the use of discriminatory economic policies to give domestic clean energy firms an unfair advantage in national and global markets. While virtually all national governments and many subnational governments have crafted clean energy policies and provide economic incentives to any establishment within their borders (regardless of nationality) to boost the clean energy industry, not all policies are created equal.

As Table 1 depicts, innovation policies can be implemented from one of four distinct qualitative categories. "Good" innovation policies benefit the country and the world

simultaneously. “Ugly” innovation policies benefit the country at the expense of other nations. “Bad” innovation policies fail to benefit either the country or the world. And “self-destructive” innovation policies actually fail to benefit the country but benefit the rest of the world.

Green mercantilist policies are implemented from one of the last two categories—ugly or bad, because the country, world, or both loses innovative capacity and global competitiveness. And as a high-wage growth industry, clean energy is no different.

| | | World | |
|---------|--------|------------------|--------|
| | | Wins | Losses |
| Country | Wins | Good | Ugly |
| | Losses | Self-Destructive | Bad |

Table 1: The Good, the Bad, the Ugly, and the Self-destructive of Innovation Policy. Green shading denotes categories that include green mercantilist policies.

Countries should seek to implement more “good” clean energy policies to build robust industries that are globally competitive and produce successive waves of innovation.

There is another way. Countries should seek to implement more “good” clean energy policies to build robust industries that are globally competitive and produce successive waves of innovation. Spurring continuously more green innovation is the best way for countries to compete in the global clean energy market in the long-term. There is an increasingly fierce economic competition among countries to “win” the global clean tech race and gain a significant market share of an industry estimated to grow to \$2.2 trillion in the coming decades.⁵ Yet the key is to do so intensely but fairly, so the competition among countries produces greater amounts of growth, not just in the short-term as through green mercantilism, but also in the long-term as countries support successive waves of innovation and creative destruction that expands the industry. Without more innovation, the clean economy will stagnate and countries won’t realize the growth and jobs benefits expected.

And we know what the building blocks of “good” clean energy innovation policies look like. There is a large and growing literature on the institutional, industry, and public investment mix that has underpinned over a century of technology development and economic growth.⁶ At its core, a successful clean energy strategy includes broad support for innovation (including support for education and skills training, and competitive trade, immigration and tax policies) as well as funding for research, development, and deployment targeted at clean energy innovation.⁷

While many “good” clean energy policies may seem like subsidies by definition (e.g., subsidizing clean energy RD&D), the difference is in their impact. “Good” clean energy policies add to the global supply of knowledge by spurring innovation, whereas the green mercantilist subsidies described in this report do not. Another way to describe it is that countries competing using “good” clean energy policies are racing to the top—i.e. trying to out-innovate each other—while countries competing using green mercantilist strategies are racing to the bottom—i.e. simply trying to out-subsidize each other.

This is an important distinction because most countries implement subsidies to provide their citizens with access to cheap energy. The International Energy Agency (IEA) calculates that the world spends over \$500 billion on fossil fuel subsidies, but by no means are all of these subsidies illegal under the WTO or mercantilist in nature.⁸ But many are, and as such the focus of this report is on the egregious green mercantilist policies that explicitly reduce global innovation and the competitiveness of other countries. These policies can be conceived in two groups: those designed to (1) unfairly boost exports and reduce imports while being indifferent to firm nationality, and (2) explicitly discriminate against foreign companies.

Green Mercantilism: Boosting Exports and Reducing Imports

Many foreign green mercantilist policies that increase exports and reduce imports, regardless of the nationality of the firm benefiting from them, benefit U.S. consumers by artificially providing lower cost clean energy in the short-term, but hurt producers in non-mercantilist nations by either artificially raising the price of imports or artificially reducing the price of exports. Countries execute this strategy through a number of different mechanisms that have similar impacts including import tariffs, export dumping, unfair subsidies and currency manipulation.

Currency Manipulation

While applying to all traded industries, not just clean energy, widespread currency manipulation is one of the most damaging green mercantilist practices. Many countries attempt to shift the balance of trade in their favor by pegging their currencies at artificially low levels. Prior to 2010, China's currency was undervalued by approximately 40 percent.⁹ While China has allowed the yuan to appreciate against the dollar by 8.2 percent since 2010, it still remains undervalued and the Chinese government still uses it as a key driver to unfairly boost exports and limit imports.¹⁰ And for clean energy trade, this unfair advantage matters, providing at least at its height of yuan depreciation a 28 percent price advantage over U.S. solar manufacturers.¹¹ As a broad-based export strategy, it has helped China increase the global share of its solar panels from approximately 2 percent in 2000 to 54 percent in 2011, while the U.S. share declined from 30 percent to 7 percent.¹²

And China is not alone in manipulating its currency. Trade analysts at the Peterson Institute have found that Hong Kong, Malaysia, Singapore, Taiwan, South Korea, Japan, and Switzerland also intervene in currency markets and substantially undervalue their currencies against the dollar in an effort to make domestic exporters artificially competitive.¹³ For instance, in December 2011, the U.S. Treasury Department used its semiannual report on international exchange rate policies to criticize the Japanese government for devaluing the yen in an attempt to boost their economy in the aftermath of the March 2011 earthquake and tsunami.¹⁴

Unfair Subsidies and Domestic Content Requirements

Subsidies work like currency manipulation except that they explicitly target the clean energy industry. But not all subsidies are mercantilist in nature. Under the WTO, subsidies can be considered harmful if it is proven that the subsidy distorts international trade.¹⁵ So on one hand, subsidies to buyers of clean energy technologies can help these technologies gain market share, especially in a market where the negative externalities of fossil fuels are

not priced. But on the other hand, subsidies specifically provided to domestic firms to give an unfair export advantage against foreign competitors is mercantilist. These subsidies to domestic clean energy firms are the problem.

For example, China utilizes subsidies to not just expand energy access to its citizens, but to also unfairly gain global market share for its clean energy producers by leveraging its first-generation technologies, like crystalline solar panels, as a market leader not on merit, but on subsidized price. After the 2008 “Great Recession” the Chinese poured hundreds of billions of yuan into their clean energy firms to help them lower their costs to gain global market share, largely through subsidies. According to the ITIF and Breakthrough Institute report, *Rising Tigers, Sleeping Giant: Asian Nations Set to Dominate the Clean Energy Race by Out-Investing the United States*, China is investing \$397 billion in their domestic clean technology industry from 2009 through 2013.¹⁶ And by all accounts China’s subsidy policy has worked. Chinese crystalline solar PV prices decreased by 47 percent since 2010 and China now exports 54 percent of the world’s solar panels.¹⁷ Building off of these successes, China is increasing its annual clean energy industry development subsidies and investments by almost 400 percent from 2011 to 2012.¹⁸

Last year China agreed to end its indigenous wind subsidies program that provided “hundreds of millions of dollars” to Chinese wind companies. But even after this program ended, China has continued to deeply subsidize its wind industry.

By using mercantilist subsidies, China is able to gain a cost advantage at the expense of foreign competitors, like the United States. Ben Santarris, the spokesman for SolarWorld and the company leading a U.S. solar trade dispute with China, put these subsidies in simple terms, “Pervasive and all-encompassing Chinese subsidies are decimating our industry.”¹⁹ According to the DOE National Renewable and Energy Laboratory (NREL), if all Chinese subsidies were removed and accounting for transportation costs, U.S. crystalline solar panels would actually have a 5 percent cost advantage over Chinese alternatives in U.S.-based solar projects.²⁰ This has led the Department of Commerce (DOC) to recently impose countervailing duties between 2.9 percent and 4.73 percent on solar panels imported from different solar manufacturers in China.²¹

China faces similar charges of illegal subsidies for its wind industry. Last year China agreed to end its indigenous wind subsidies program that provided “hundreds of millions of dollars” to Chinese wind companies.²² But even after this program ended, China has continued to deeply subsidize its wind industry. A coalition of wind companies recently filed a trade dispute requesting action against Chinese subsidies for domestic utility-scale wind towers.²³ In response, the DOC recently imposed a preliminary 13.74 percent to 26 percent tariff on different Chinese wind tower companies.²⁴

And China isn’t the only country using mercantilist subsidies to give domestic industries an unfair advantage. The same coalition of U.S. wind tower companies to file a dispute against China filed a trade dispute against Vietnam for providing their domestic producers subsidies that give them up to a 64 percent price advantage.²⁵ Mexico has created a subsidy fund to subsidize the use of domestically-sourced equipment and product components in various energy projects.²⁶ Brazil gives a greater tax exemption to domestic biodiesel producers compared to foreign-owned companies.²⁷ And Japan’s “Enhanced Facility for Global Cooperation in Low Carbon Infrastructure and Equity Investment” (E-FACE)

program provides subsidies and government-backed loans to domestic firms in an effort to boost the export of clean energy technologies.²⁸

Many countries also use domestic content requirements as a vehicle for providing preferential treatment to domestic firms. Starting this year, Ukraine requires up to 15 percent to 30 percent of clean energy technologies to be locally sourced in order to receive subsidies from its feed-in tariff program, increasing to 50 percent by 2014.²⁹ Ontario and Quebec require up to 50 percent and 60 percent respectively of renewable energy to be locally sourced in order to be eligible for subsidies and feed-in tariff incentives.³⁰ India has a similar clause in their feed-in tariff, requiring that solar modules and cells must be produced in India to benefit from feed-in subsidies.³¹ Italy provides an additional 5-10 percent production subsidy for solar components manufactured in the European Union.³² Brazil increased taxes on automobiles, including those that use clean energy technologies, by 30 percent, but exempt any vehicle that sources 65 percent of the vehicles parts from domestic producers.³³

And countries aren't alone in using domestic content requirements as many U.S. states use domestic preferences as well. Washington State offers a higher production tax incentive up to \$0.54/kWh to companies that manufacture solar PV systems in state while out-of-state manufacturers are only eligible for the base rate of \$0.15/kWh.³⁴ Colorado and Missouri provide companies producing clean energy products in-state incentives 25 percent larger than if the companies were located out-of-state.³⁵ And Ohio requires that half of all mandated clean energy must come from in-state production.³⁶

Export Dumping

Whereas domestic production subsidies aim to lower the cost of manufacturing, export dumping aims to sell products at below-market costs in order to undercut competitors and dominate foreign markets. Governments can do so by explicitly subsidizing domestic manufacturers so they can sell the products at below cost or if the domestic firms are state-owned enterprises (SOE) the government can simply absorb any losses. In both cases, export dumping is mercantilist because it is an explicit government strategy to sell products at below-fair prices.

In the clean energy trade, China effectively utilizes this practice. According to U.S. Industry Trade Advisory Committee member Timothy Brightbill, “[China’s] rapid and unprecedented expansion [of its solar industry] was the direct result of the Chinese government’s support, including its granting of an extraordinary range and amount of subsidies to the industry. Some companies in China’s solar industry are SOE’s; many others are effectively state-controlled because of close connections to the government, or because they are dependent on the government for subsidies.”³⁷ In fact, Chinese SOE’s, of which many are clean energy-related, would have operated at a 6.29 percent loss from the period of 2009 to 2011 without the help of the government.³⁸

While it’s not clear what method China is using to export dump its clean energy technologies, it’s explicitly clear that they are. In May 2012, DOC preliminarily ruled to impose an additional 31 percent tariff on 62 Chinese solar companies (and 250 percent on all others) to counter Chinese export dumping.³⁹ Additional tariff rulings on China and

Vietnam are expected later this year to counter utility-scale wind tower export dumping.

Tariffs and Customs Duties

Green mercantilists not only use subsidies to cut export costs—they also use tariffs and customs duties to increase import prices. This enables firms in their country to not only gain domestic market share and reduce costs through scale economies, but to also enjoy superior profits from reduced competition, allowing them to reinvest to lower prices even more. For example, China has implemented a 3-30 percent tariff on imported wind turbine and hydro power components and up to a 6 percent tariff on complete turbines since the mid 1990's to provide domestic firms an unfair advantage over foreign competitors. China removed the tariff for most components in 2010, but only after many foreign companies moved manufacturing capabilities to the country and its own wind turbine companies reached maturity.⁴⁰ Russia has imposed tariffs on different components of biofuels, such as roundwood, to protect domestic industries.

And other countries and regions, like the European Union (EU), continue mercantilist biofuel tariffs of up to 63 percent the original cost of the product, as a way to ensure domestic firms produce the fuels necessary to meet EU renewable fuel mandates.⁴¹ Brazil recently imposed a 14 percent tariff on small to medium-sized wind turbines to encourage wind companies to build manufacturing plants locally.⁴² Since 2009, South Korea has cut a laundry list of import tariffs on components related to manufacturing solar panels, wind turbines, and electric vehicles by 50 percent less than imported, finished clean technology products in an effort to incent foreign firms to export component parts and manufacture the finished products in South Korea instead of just importing fully manufactured technologies.⁴³

Even the United States, which compared to China is a paragon of free trade, has implemented some mercantilist tariff policies. Since 1980, the United States implemented a \$0.54 per gallon tariff on imported ethanol, which provided domestic corn-farmers and fuel producers an unfair advantage over cheaper foreign sources, such as those from Brazil. However, unlike other mercantilist nations which often keep and even expand such policies, the U.S. Congress recently allowed the tariff to expire, requiring U.S. producers to compete on merit in the open market.⁴⁴ In fact, the United States along with 21 members of the Asia-Pacific Economic Cooperation (APEC) plan on releasing a list of “environmental goods and services,” which includes clean energy, by September 2012 with the goal that all countries will reduce tariffs to less than 5 percent by 2015. Unfortunately, China has not participated.⁴⁵

Green Mercantilism: Discriminating Against Foreign Firms

The second type of green mercantilist policy doesn't just seek advantage by acquiring robust trade surpluses; it seeks to ensure that domestic owned firms benefit. There is a range of policies that nations use to do this, which result in reduced global market share for foreign-owned companies.

Technology Transfer

One broad class of mercantilist clean energy policies is designed to get as much foreign technology into the nation's domestic clean energy firms as possible. China is the most

egregious practitioner of this, in part because without foreign technology the Chinese clean energy industry would be much less competitive. But other nations engage in this as well. There are three main practices: IP theft, forced technology transfer; and limits on foreign ownership.

IP Theft

Recognition of intellectual property (IP) rights, such as patents, copyrights, and trade secrets, is a vital element of growth in the global clean energy trade (as well global trade in general). But countries often pursue export-led growth by implementing lax IP laws or outright turning a blind eye to IP theft. For example, the United States International Trade Commission estimates that in 2009 Chinese theft of U.S. IP cost almost one million U.S. jobs and caused \$48 billion in U.S. economic losses.⁴⁶ While not predominantly clean technology theft, this level of IP theft is becoming a more prominent issue worldwide.

Espionage is one of a variety of means to illegally obtain foreign clean energy IP. Most recently, Massachusetts-based American Semiconductor Corp (ASC) has accused China's leading state-owned wind power company Sinovel of stealing a host of trade secrets including proprietary software used for controlling turbines. Sinovel's turbine design lacked the sophisticated electronic and software designs of its competitors, resulting in turbine failures. For example, in April 2011 over 1,300 wind turbines suddenly shut down resulting in disruptions in the electricity grid. Instead of purchasing ASC's technology for all its turbines, Sinovel bribed an ASC software engineer for \$1.7 million to copy ASC's technology using source code from ASC's servers, which the engineer completed and installed in Sinovel's turbines.⁴⁷ Sinovel immediately stopped accepting ASC's shipments, costing the company over \$140 million in existing orders. Sinovel also represented two-thirds of ASC's revenue. So as a result of the IP theft, investors fled ASC because it lost its biggest customer, resulting in an 85 percent decline in worth.⁴⁸

In another case, two former GM employees were charged with stealing trade secrets relating to hybrid vehicles and passing that information to China's Chery Automobile Company.⁴⁹ And in 2011, Japan's Kawasaki Heavy Industries initiated legal action against China National Railway (CNR) Corporation for stealing its IP for high-speed rail car designs after CNR and Kawasaki partnered on a series of high-speed rail projects.⁵⁰

While these are high-profile cases, it is expected that instances of IP theft will only grow. According to the U.S. Office of the National Counterintelligence Executive, government and industrial espionage, especially from China and Russia, "will remain aggressive and capable collectors of sensitive U.S. economic information and technologies," and it names clean energy as one of the top targets.⁵¹

Forced Technology Transfer

In many cases green mercantilist countries require foreign firms seeking to access their market to relocate R&D facilities or explicitly transfer their technologies to domestic firms, so domestic firms can more quickly gain technology-specific knowledge. In fact, this may be the biggest mercantilist issue moving forward. As David Joy, Chief Market Strategist for Ameriprise Financial, states, "To me, that's [forced technology transfer] actually the biggest

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issue, more even than currency valuation. Being forced to give up technology for access to the market is essentially blackmail.”⁵²

For example, Portugal announced in 2010 that any wind company wishing to gain access to their market had to partner with a local Portuguese University to conduct clean tech research as a way to more quickly gain technical know-how.⁵³ Yet companies are often unwilling to publically call attention to the technology transfer requirements in deals with China. In need of companies to provide more than just concerns and instead give actionable examples, the United States Trade Representatives (USTR) requested that the National Association of Manufacturers (NAM), collect private, but “credible real world cases” of forced technology transfer in China in early 2012.⁵⁴

Nonetheless, some cases of forced technology transfer do become public knowledge and most often involve China. Because China’s market is so large, most foreign companies see an overall benefit in doing business even if they have to give away some of their technology secrets as the quid pro quo. As such, forced technology transfer is an explicit policy of the Chinese government for clean energy technologies. For instance, in accordance with its “New Energy Vehicles” plan, China requires foreign electric vehicle makers to transfer IP to a Chinese automaker as a requirement for gaining access to the market.⁵⁵ A recent case involved General Motors (GM) trying to gain access to China’s 50 percent tax credit for electric vehicles, which domestic firms already have access to, but GM didn’t for its Chevy Volt without permission of the Chinese government. While in negotiation, the Chinese government began placing “heavy pressure on the company to transfer one of the Volt’s three core technologies to a joint venture with a Chinese automaker.”⁵⁶ GM eventually balked, but one of its competitors, Ford, plans to accede to China’s technology transfer demands to qualify for the consumer credit.⁵⁷

Another case of forced technology transfer was made public in 2008, when Siemens and China National Railway (CNR) completed a joint-venture project to build China’s first high-speed rail line, but transferred its IP to CNR to gain access to the Chinese market.⁵⁸ Siemens then announced it had won a second high-speed rail project in China, but it was quickly awarded to CNR who used its knowledge of Siemens technology to gain immediate market advantage.⁵⁹

Limits on Foreign Investments and Ownership

One way foreign nations are able to artificially obtain clean energy technology capabilities is to limit foreign investments and ownership of domestic firms. Nations with large and growing domestic markets can more easily restrict access to foreign firms, limit total ownership of foreign firms in domestic companies, or require foreign firms to partner with a domestic competitor in a joint partnership which provides the domestic firms with access to superior foreign technology and knowledge they otherwise wouldn’t have access to. The OECD analyzed countries’ foreign direct investment policies concerning clean energy and found that significant foreign investment restrictions are most prevalent in Asian countries including China and Japan, but it is also a growing problem in European and South/Central American countries like Mexico, Morocco, and Greece.⁶⁰

The European Union's biofuel policy is a "classic example of green protectionism" that cuts off foreign competitors that cannot prove compliance with the carbon reduction standards.

China's policies require foreign companies to form joint ventures with Chinese companies, giving the Chinese partner at least a 50 percent ownership stake, as a prerequisite of entering the Chinese market.⁶¹ Recently, GE announced a 50-50 joint venture with China's largest coal company, the Shenhua Group, to open the GE Shenhua Gasification Technology Company to conduct RD&D on converting coal to synthetic gas.⁶² Siemens created a joint venture with a 49 percent minority stake with Shanghai Electric to develop and deploy off-shore wind turbines.⁶³ Canada-based Xantrex entered into a 49 percent minority stake joint venture with Shanghai Power Transmission and Distribution to design and manufacture solar and wind power electronics.⁶⁴ U.S.-based PowerGenix entered into a 49 percent minority partnership with China City Construction Corporation to manufacture its nickel-zinc electric vehicle batteries.⁶⁵

Other developed and developing countries also limit foreign ownership for market access. The Philippines only allows foreign companies a 40 percent ownership stake and Thailand only 49 percent.⁶⁶ In addition, France doesn't allow foreign takeovers of "strategic industries" including biotechnology and its domestic nuclear energy companies.⁶⁷ Indonesia requires 100 percent domestic ownership for all electric power generating projects below 100MW and at least 51 percent domestic ownership for projects above 100MW.⁶⁸

Restricting Access to the Domestic Market

Another way mercantilist nations grow their clean energy industries is by restricting market access by foreign-owned firms, even ones producing in their own country, with the idea that absent such competition, domestically-owned and often government-owned firms will gain a competitive advantage. There are at least three key ways nations do this: standards, access to critical materials, and limiting foreign access to government procurement.

Standards and Technical Barriers

Internationally compatible standards enable businesses to efficiently manufacture products at scale instead of producing different variations of the same product to meet local regulations. As such, consumers benefit from access to more technologies and services at lower cost. In particular, these standards are important to clean energy related to the smart grid, wind turbines, electric vehicles, biofuels, and solar panels.

There is nothing unfair about governments participating in standards-setting, as long as governments do not dominate the process, interfere with consensus building, or mandate specific standards that only benefit domestic firms.

Yet countries are increasingly using standards as a green mercantilist tool to block or limit foreign companies' access to their markets as a way of protecting domestic industries. In 2009, the European Union implemented the Renewable Energy Directive that established "sustainability standards" mandating that in order to be eligible for tax exemption, biofuels must directly reduce carbon emissions by up to 35 percent compared to the replaced fuel. However, this explicitly favors domestically abundant fuels like rapeseed oils over competing foreign products like palm oils or soybean oils that produce slightly more greenhouse gases.⁶⁹ According to a recent report by the *European Centre for International Political Economy* (ECIPE), the European Union's biofuel policy is a "classic example of

And while the Chinese government “officially” ended its indigenous innovation procurement policies in December 2011, it still likely informally enforces it, especially for targeted high-growth industries. And the policy change did not apply to purchases made by China’s SOEs, which represent the majority of its clean energy industry.

green protectionism” that cuts off foreign competitors that cannot prove compliance with the carbon reduction standards. Starting in 2011, China requires all wind turbines to meet and attain local government standards and test certifications in order to be eligible for domestic wind projects.⁷⁰ And South Korea requires all solar panels to be certified before being sold, yet its standard effectively excludes thin-film solar PV designs largely exported by the United States, shutting those products out of the market.⁷¹

Restricting the Export of Critical Materials

Critical materials—a set of 17 elements with unique electro-magnetic properties—are vitally important to developing and manufacturing clean technologies including wind turbines, solar panels, and electric vehicle batteries. China controls almost 95 percent of the world’s critical material extraction and supply industry and has increasingly placed more stringent export quotas to supply its domestic firms.⁷² These restrictions have driven up the global price of critical materials, while keeping prices cheaper for domestic manufactures. For example, in April 2010 the price for cerium oxide, a rare-earth material used in a variety of carbon absorption technologies was \$5/kg, but after China implemented export controls the price increased to \$151/kg in May 2011, while the material was domestically priced at \$29/kg. Moreover, the Chinese government has made it clear to industrial consumers that they could gain access to their critical materials at a cheap price if they just moved their factories to China.

Earlier this year, the European Union, United States, and Japan formally asked the WTO to settle a dispute over China’s critical material export restrictions.⁷³

Limiting Government Procurement to Domestic Firms

Governments are the world’s largest procurers of goods and services. For example, within the OECD, government contracting accounts for an estimated 15 percent of total GDP.⁷⁴ But many countries explicitly favor domestic firms or state-owned enterprises (SOE), effectively blocking foreign competition. As a result, green mercantilists are protecting potentially less innovative domestic technologies and stifling the growth of more competitive alternatives.

China utilizes its “indigenous innovation” policy to discriminate against foreign-owned companies competing for clean energy procurement contracts. To be eligible for government policy preferences, products have to contain Chinese proprietary intellectual property. And while the Chinese government “officially” ended this practice in December 2011, it still likely informally enforces it especially for targeted high-growth industries. The policy change did not apply to purchases made by China’s SOEs, which represent the majority of its clean energy industry.⁷⁵ For example, China recently ruled that government agencies can only purchase Chinese-made vehicle brands, including hybrids and electric vehicles, from a government-approved list.⁷⁶ It has also drafted new wind development project procedures that discriminate against foreign producers and provide no transparency on how firms are evaluated.⁷⁷

And restrictive government procurement policies aren’t limited to China’s economy alone. The United States recently implemented “Buy American” provisions that require all ‘manufactured goods’ over \$3,000 used in the construction or maintenance of federal

buildings to be domestically sourced. Unless waived, these provisions could include solar panels and energy efficiency technologies.⁷⁸ In 2011, Brazil implemented a provision in its national economic growth and competitiveness strategy, “Brasil Maior,” that gives domestic firms an edge in government procurement contracts by allowing them to cost 25 percent more than the equivalent imported project.⁷⁹

WHY SHOULD WE CARE ABOUT FOREIGN GREEN MERCANTILIST PRACTICES?

At first glance, some of the above green mercantilist strategies appear successful on both the national and global level. At the national level, many nations’ clean energy sectors have enjoyed rapid growth due in large part to mercantilist policies. For instance, China, the most egregious green mercantilist, has managed to leverage its widespread discriminatory practices into massive growth in the global solar and wind market. At the global level, mercantilist policies, particularly those aimed at boosting exports, helped drive down clean energy prices and grow the installed clean energy base. For example, cheaper, mercantilist-backed Chinese solar panels were a big factor that led to a 69 percent increase in global solar installations in 2010-2011.⁸⁰

Cheaper, next-generation clean technologies are critical and the only way to produce them is through new technology development, which green mercantilist-backed deployment of existing technologies does little to support.

Notwithstanding this fact, green mercantilism hurts, not helps the quest to transform the global economy from fossil fuels to clean energy because it limits clean energy innovation. As ITIF’s report *The Good, the Bad, and the Ugly of Innovation Policy* found, a global trading system plagued by “bad” and “ugly” mercantilist practices will produce less innovation than a system based on “good” innovation policies. Clean energy innovation is key to making clean energy cheaper than fossil fuels without long-term subsidy dependence. According to former Microsoft CTO and Intellectual Ventures CEO Nathan Myrthold, “We need to invent new energy technologies... We need higher efficiency in solar. We need new kinds of nuclear technology. We need lower cost for all of these things. So there is a lot of energy invention to do.”⁸¹

According to MIT solar energy experts, solar PV must reach \$0.50 per peak watt to become competitive without subsidies yet, “Current [silicon PV] manufacturing costs are two to three times higher than the \$0.50 per peak watt target, raising questions of whether insurmountable cost barriers exist for this technology... Reaching \$0.50 per peak watt costs necessitates advanced concepts not currently in industry roadmaps.”⁸² Solar isn’t the only technology that costs too much. Electric vehicle batteries account for over 25 percent the total cost of the vehicles and according to Bloomberg New Energy Finance, “are the biggest drivers of the cost... and hence their uptake.”⁸³ The innovation of next-generation batteries that provide longer range per charge while also being significantly cheaper is vital to making electric vehicles competitive with their gasoline counterparts. Other clean technologies like wind turbines are also not cost competitive when all costs, including energy storage (for periods when the wind does not blow) and transmission, are factored in. And even more advanced low-carbon technologies like small modular reactors are still in the early stages of first-of-kind development and require significant innovation before reaching the market. In other words, cheaper, next-generation clean technologies are critical and the only way to produce them is through new technology development, which green mercantilist-backed deployment of existing technologies does little to support for two reasons:

Green Mercantilism Limits Incentives for Domestic Firms to Innovate

Green mercantilist policies focus on increasing market share through large subsidies and market restrictions that limit foreign competition. Domestic firms that enjoy the protections or advantages of green mercantilism have less of an incentive to innovate, because pursuing innovation to bolster their competitive position is less necessary to gain a competitive edge. Instead, firms can rely on subsidies to grow to a larger industry market share, stifling competition not on the merits of better technologies, but on the subsidized price of less-innovative technologies.

Therefore, continuous public subsidies are required for green mercantilist-supported technologies to remain competitive and gain greater market share. Yet governments only have a finite amount of resources to invest and the more public funding spent subsidizing the production of uncompetitive technologies reduces the amount available to invest in innovation broadly. Especially in times of fiscal austerity, it's often unlikely that countries can subsidize an entire industry while supporting robust innovative activities elsewhere. Fundamental choices must be made, and mercantilist countries could potentially become a "one-trick pony" focused solely on exporting existing clean energy while ignoring efforts to develop cheaper and better alternatives.⁸⁴ In fact, as both Table 2 and 3 show below, countries that practice more "good" clean energy innovation policies rank near the top in producing clean energy innovations while countries that implement green mercantilist practices are more often lower in the rankings.

This is particularly important to consider when comparing the United States clean energy innovation ecosystem and China's system of technology copying and low-cost manufacturing. As GTM Research Analyst Shyam Mehta states, "The Chinese don't really add much value in terms of intellectual property."⁸⁵ In the clean energy sector, this is most clearly seen in recent trends in the international solar PV trade. As noted above, China is the world's largest producer of first-generation crystalline silicon solar panels, and has been gaining market share rapidly at the expense of competitors elsewhere.⁸⁶ But Chinese investment in more advanced solar PV ideas is relatively small compared to the more mature technology.⁸⁷ On the other hand, American investments in solar are more mixed, with investments going towards more advanced second-generation thin-film solar technologies or third-generation nanotechnology-based architectures that offer substantial upside to achieving unsubsidized cost-competitiveness with fossil fuels. Chinese firms are simply not as innovative as American firms: they invest a lower percentage of revenue on R&D, and while they patent broadly and aggressively, these patents tend to focus on minor, low-value innovations.⁸⁸ While the Chinese government has taken some steps to try strengthening its clean energy innovative capacity, its success has been mixed and it still lags in effectiveness to other countries like Japan and the United States.⁸⁹

Per capita, the United States ranked 14th out of the top 60 countries in filing clean energy patents in 2009 under the PCT, whereas China is ranked 41st, lower than countries like Denmark, Hungary, Italy, and Latvia.

| Rank | Country | Clean Energy Patents Per Million Residents | Rank | Country | Clean Energy Patents Per Million Residents |
|------|-----------------|--|------|----------------------|--|
| 1 | Denmark | 27.04 | 31 | Greece | 1.03 |
| 2 | Japan | 26.52 | 32 | Poland | 0.68 |
| 3 | Sweden | 24.45 | 33 | Malaysia | 0.82 |
| 4 | Germany | 23.24 | 34 | Bulgaria | 0.75 |
| 5 | Norway | 21.52 | 35 | Portugal | 0.68 |
| 6 | Switzerland | 19.05 | 36 | Croatia | 0.68 |
| 7 | Finland | 17.70 | 37 | Romania | 0.62 |
| 8 | Austria | 16.99 | 38 | Russia | 0.48 |
| 9 | South Korea | 15.37 | 39 | United Arab Emirates | 0.43 |
| 10 | Netherlands | 14.78 | 40 | South Africa | 0.41 |
| 11 | Israel | 12.92 | 41 | China | 0.36 |
| 12 | Singapore | 11.00 | 42 | Chile | 0.35 |
| 13 | France | 10.95 | 43 | Kazakhstan | 0.32 |
| 14 | United States | 8.88 | 44 | Chinese Taipei | 0.31 |
| 15 | Australia | 8.49 | 45 | Ukraine | 0.31 |
| 16 | Canada | 7.90 | 46 | Tunisia | 0.28 |
| 17 | Iceland | 7.43 | 47 | Turkey | 0.26 |
| 18 | Belgium | 7.09 | 48 | Saudi Arabia | 0.22 |
| 19 | United Kingdom | 6.06 | 49 | Moldova | 0.21 |
| 20 | New Zealand | 5.21 | 50 | Brazil | 0.20 |
| 21 | Ireland | 4.64 | 51 | Columbia | 0.15 |
| 22 | Italy | 4.26 | 52 | Morocco | 0.12 |
| 23 | Slovenia | 4.23 | 53 | Egypt | 0.12 |
| 24 | Spain | 3.83 | 54 | Guatemala | 0.07 |
| 25 | Luxembourg | 3.35 | 55 | India | 0.07 |
| 26 | Hungary | 1.63 | 56 | Philippines | 0.06 |
| 27 | Estonia | 1.49 | 57 | Thailand | 0.06 |
| 28 | Czech Republic | 1.44 | 58 | Sri Lanka | 0.06 |
| 29 | Latvia | 1.33 | 59 | Mexico | 0.05 |
| 30 | Slovak Republic | 1.11 | 60 | Belarus | 0.04 |

Table 2: Ranking of top 60 countries by clean energy patents per million residents in 2009 using Patent Cooperation Treaty (PCT) data. Data sourced from OECD patent database.⁹⁰

For example, the United States accounted for 20 percent of global clean technology patents filed under the International Patent Cooperation Treaty (PCT) compared to 3.5 percent for China in 2009. Per capita, this ranks the United States 14th out of the top 60 countries that filed clean energy patents in 2009 under the PCT, whereas China is 41st (Table 2). In fact, the history of the United States clean energy patents highlights that it has innovated the lion's share of clean energy technologies in the market today including first-generation solar PV, concentrated solar, key components of advanced wind turbines, electric vehicle batteries, nuclear energy, and a host of energy efficiency technologies.

As more-advanced firms lose market share, and less-advanced mercantilist-backed firms grow, the pace of clean energy innovation is likely to slow, with inferior technologies potentially even being locked-in while emerging technologies are blocked.

Analyzing a broader range of indicators, the United States ranks higher than China in developing advanced clean energy innovations. The 2012 *Global Cleantech Innovation Index* ranks the United States 4th and China 21st out of 38 countries in “emerging clean tech innovation” which factors in not only patenting, but also early-stage private sector investment and start-up creation (Table 3).⁹¹

| Rank | Country | Rank | Country |
|------|----------------|------|--------------|
| 1 | Israel | 20 | Australia |
| 2 | Denmark | 21 | China |
| 3 | Sweden | 22 | Hungary |
| 4 | United States | 23 | Slovenia |
| 5 | Finland | 24 | Italy |
| 6 | Norway | 25 | South Africa |
| 7 | South Korea | 26 | Spain |
| 8 | Germany | 27 | Bulgaria |
| 9 | Canada | 28 | Portugal |
| 10 | Japan | 29 | Poland |
| 11 | United Kingdom | 30 | Brazil |
| 12 | Netherlands | 31 | Russia |
| 13 | Belgium | 32 | Turkey |
| 14 | Ireland | 33 | Romania |
| 15 | Austria | 34 | Mexico |
| 16 | France | 35 | Greece |
| 17 | Switzerland | 36 | Argentina |
| 18 | India | 37 | Saudi Arabia |
| 19 | Czech Republic | 38 | Indonesia |

Table 3: Global Cleantech Innovation Index ranking of top 38 countries in patenting, early-stage private sector investment and start-up creation.⁹²

The difference between the clean energy policies of the United States and China are made clear in comments by leading Chinese solar PV firm JA Solar CEO Peng Fang, “It’s not a pure technology business. If you invest in it as technology first and (cost reduction) second, you miss it. You need to reverse that.”⁹³ In other words, instead of relying on innovation and the development of more advanced technologies to grow their clean energy industry, Chinese firms rely on the “blunt force” of scale and unfair policy-driven advantages to drive down costs—though still not far enough to reach cost-competitiveness with fossil fuel. Of course, this statement would be true if blunt force subsidies—and not innovation—was all that was needed to make solar energy an economically feasible alternative.

Green Mercantilism Limits Incentives for Foreign Firms and Entrepreneurs to Innovate

Green mercantilism also hurts clean energy innovation by limiting the size of the global market and discouraging foreign firms from investing in innovation. Tariffs, domestic content requirements, and other subsidies distort the allocation of production by often increasing the number of production facilities (so firms can benefit from the incentives or meet domestic requirements), which doesn’t allow firms to reach higher scales of

manufacturing. This ultimately limits clean energy cost reductions in the short and long-term. Also, countries protecting their indigenous industries shrink the market available for foreign innovators to commercialize new products. An artificially smaller market combined with unfairly supported industries, IP theft or forced technology transfer effectively limits entrepreneurs and firms “Schumpeterian” profit potential—the profits captured from innovative activity—and reduces the incentive for making risky investments in innovative ideas.

Why should U.S. firms invest in the kind of advanced, cutting edge research needed to transform the global energy system if the odds are high that firms in other nations will steal the technology to compete against them? Why should the government invest in research at leading universities that might lead to another American Superconductor if the odds are high that the Chinese will steal the trade secrets to potentially dramatically reduce American Superconductor market share and U.S. jobs? Why would an entrepreneur invest time and money in a brand new idea if the market is effectively cut off from competition? The answer to all of these questions in a clean energy industry dominated by green mercantilist is they shouldn't.

And we're starting to see this type of reaction from U.S. policymakers. U.S. federal policy has historically been the main driver of breakthrough technology development, which includes high-profile investments in the development of the Internet, the jet engine, and the microchip to name a few. And the federal government's investment in breakthrough clean energy innovation has been no different. From 2009 through 2014, the federal government will have invested \$150 billion in the research, development, scale-up, and deployment of clean energy.⁹⁴ But green mercantilism is resulting in significant political backlash for continuing these vital investments. For example, China's green mercantilist practices allowed its manufacturers to capture significant market share at the expense of U.S. industries, contributing to high-profile bankruptcies like Evergreen Solar and Solyndra. These bankruptcies have become the focus of opposition to U.S. clean energy policy, including vital clean energy innovation programs like the ARPA-E and public-private research partnerships through the National Labs. This opposition is resulting in stagnant or declining budgets at a time when the United States should be doubling down on investments in innovation.⁹⁵

Combining the effects of green mercantilist-protected firms' lack of incentive to innovate with its impact on foreign clean energy investments, green mercantilism could potentially lock-in inferior clean technologies while limiting the development of next-generation clean energy technologies. Without strong and consistent incentives to innovate, the clean energy industry will not see the necessary levels of investment required to develop and deploy cost-competitive clean energy that isn't reliant on subsidies and guide the world to drastically lower carbon emissions. Clean energy policy experts Melanie Hart and Kate Gordon concur: “The long-term result [of Chinese subsidization] is that a small number of heavily subsidized Chinese manufacturers could dominate the global solar market. That may make Chinese leaders happy, but if those firms are not producing the best solar technologies—for example, if their solar panels are not as efficient as they need to be to compete with traditional fossil fuels—that can slow solar-market development worldwide.”⁹⁶

As a result, this leaves policymakers and consumers with a choice: cheaper existing clean tech that is reliant on government subsidies or cheaper next-generation clean technologies that are competitive on their own through innovation. A green mercantilist approach not only continues the former but makes the latter much more difficult, both substantively and politically.

TIME TO START ROLLING BACK GREEN MERCANTILISM

As more-advanced firms lose market share, and less-advanced mercantilist-backed firms grow, the pace of clean energy innovation is likely to slow, with inferior technologies potentially even being locked-in while emerging technologies are blocked either through a lack of investment in innovation or an unfair playing field due to subsidized existing technologies. As a result, green mercantilism threatens to limit the growth of the clean technology the planet needs.

Individual Country Actions Against Green Mercantilism

The United States has recently started to take action against green mercantilism. Since early 2012, the U.S. Department of Commerce has passed initial rulings, including tariffs, against Chinese green mercantilist subsidy and export dumping policies for wind towers and solar PV. They also joined with Japan and the European Union to fight China's mercantilist export restrictions for critical materials. It is important for policymakers and clean energy advocates to continue to support these actions, but more direct action is needed to eliminate green mercantilism from the global clean energy industry.

In particular, countries should immediately step up enforcement of existing trade agreements related to clean energy within the WTO's framework. First, in many cases like the United States, this requires more investments in trade enforcement agencies and a cohesive message from national policymakers that green mercantilism will not be tolerated. For instance, Congress should increase funds for the United States Trade Representative (USTR) to be used for stepped up enforcement, as well as for the creation of a new office of Globalization Strategies within USTR to expand its capabilities.⁹⁷ And because clean energy is of strategic importance to the United States, within this office a special unit for green mercantilism should be created (as well as units for other strategic industries, like IT and life science technologies). Second, this commitment also requires free trade-based countries, like the United States, to make it national policy that it will bring cases whenever clean energy interests are being hurt through trade rule violations, even if companies don't initiate cases on their own. And third, countries should make it national policy that it won't procure products and services from countries that don't have open and non-discriminatory government procurement policies. For instance, the United States should announce that until China truly eliminates domestic content requirements in its local, regional and national procurement policies, federal funds will not be used to support the purchase of Chinese-made clean energy technologies.

But many clean energy advocates are ambivalent to green mercantilism. In their view, tariffs on mercantilist-backed goods threaten to undermine the early growth in clean energy and any efforts to take action against it will simply lead to a destructive trade war.

Policymakers and consumers have a choice: cheaper existing clean tech that is reliant on government subsidies or cheaper next-generation clean technologies that are competitive on their own through innovation.

Continuing support for uncompetitive clean technologies with green mercantilism means that the jobs created are artificial and not sustainable in the long-term. Instead policymakers and advocates would do well to support clean tech job growth as the result of green innovation.

University of California-Berkeley Professor Daniel Kammen opined in *The Hill* that aggressive action against Chinese green mercantilist policies is the equivalent of a “pursuit of a ‘clean-tech trade war’” that “will only serve to thwart the innovative and job-creating power of this burgeoning alternative energy industry.” In Kammen’s opinion China, “certainly should do a better job of reporting on its subsidy programs in accordance with WTO requirements,” but any action to enforce that is a non-starter.⁹⁸ And President of the Coalition for Affordable Solar Energy Jigar Shah equates the United States responding to Chinese green mercantilist policies as the equivalent of protectionism, “The U.S. and China should avoid a mutually destructive trade war and reach an agreement that benefits the solar industries in both countries... To generate good jobs and clean energy, we need progress, not protectionism.”⁹⁹

But arguing that taking action, including holding green mercantilists accountable, will start a destructive trade war misses the point: the clean energy trade war has already started and green mercantilists have already fired all the shots and done almost all of the damage. Green mercantilists are already unfairly tilting the clean energy trade playing field in their favor, so attempts to address it are attempts to restore the global free market. In addition, bringing cases before the WTO against green mercantilism is not protectionist, but rather part of the free trade system. Retaliating against green mercantilism with tariffs or other actions is only protectionism if it were to continue after other nations such as China begin to play by the rules.

Another argument against individual countries taking action is that it will hurt domestic downstream clean energy installers and suppliers. For example, studies analyzing the impact of U.S. tariffs on Chinese solar PV imports found that the U.S. solar industry could lose over 60,000 jobs because of decreased demand (as a result of higher priced solar products).¹⁰⁰ But this argument misses two points. First, downstream clean energy jobs such as solar roof-top installers are not a “traded” industry. If consumers don’t install solar panels because of higher prices, they will spend money on something else, creating job opportunities in other industries. A tariff on unfairly subsidized foreign clean energy products doesn’t reduce the overall number of jobs in the U.S. economy; rather it moves jobs from subsidized to non-subsidized industries.

Second, potential job losses because of aggressive action against green mercantilists have less to do with the impact of tariffs and more to do with clean technologies’ lack of cost-competitiveness. The tariffs would simply level the cost playing field, so if green mercantilist-backed clean energy technologies are more expensive, then the industry has a technology problem. Continuing support for uncompetitive clean technologies with green mercantilism means that the job creation is not sustainable. Instead policymakers and advocates would do well to support clean energy innovation policies as the path to market-based and sustainable clean energy jobs.

Global Actions Against Green Mercantilism

While nations need to act in cases where their interests are being hurt by green mercantilist policies, they also need to work to craft new global frameworks that will make it more

likely nations will roll back clean energy mercantilist policies and expand “good” clean energy innovation policies. There are at least two immediate steps that should be taken.

Allow Nations to Meet Global Greenhouse Gas Reduction Obligations By Committing to Clean Energy RD&D Investment Targets

A key step countries can take is to create a new climate change agreement that would provide nations with stronger incentives to invest in clean energy innovation. The world is under-investing in the research, development, and demonstration (RD&D) activities that are the cornerstone of “good” green innovation policies by an average of \$25-\$75 billion per year.¹⁰¹ Rather than make these longer-term, grow-the-pie investments that benefit the country and the world, too many nations use subsidies to gain market share.

To change this equation and give nations more of an incentive to invest for the collective good of the world, global climate change negotiators should work to provide an internationally binding framework that allows nations to choose one of two targets: reductions of their own greenhouse gas emissions or increases in clean energy RD&D investments. It would work this way—countries active in international climate treaty talks would have a choice: sign-up for traditional carbon emission reduction targets like those being negotiated, or instead agree to meet gradually increasing clean energy RD&D investment intensity targets. Clean energy would be defined as renewable technologies, advanced nuclear, energy efficiency, carbon capture, and the host of enabling technologies needed to make these technologies competitive, such as energy storage and smart grids. And investments could come from a mixture of direct government expenditures, such as to national laboratories and through grants, as well as through the tax code, such as through R&D tax credits that spur companies to invest in clean energy RD&D. Setting even a modest target like 0.065 percent of nation’s GDP devoted to clean energy RD&D would increase public investments in innovation by \$40 billion annually, assuming most countries agree to the targets.¹⁰²

The benefits of pursuing this type of international agreement are clear. It would immediately implement a far more effective framework for climate change action than the greenhouse gas emission targets under consideration today. Arbitrary emission caps and targets are limited because market signals won’t magically spur the development of new clean energy technologies that are cheap and viable. Market signals may have an impact at the margin by encouraging consumers to drive smaller vehicles or prompting utilities to switch to existing natural gas technologies, but it isn’t enough to pull breakthrough technologies from lab to market. Instead, more targeted public policies and incentives to increase investments in clean energy RD&D would accelerate the development of new clean energy alternatives, drive down clean energy costs, and lessen the need for mandates and targets to pull clean energy to widespread deployment. For example, the European Union (EU) would be better served by aggressively investing in the development of significantly more efficient solar cells that cost less to deploy than natural gas than by its current policy of capping emissions and implementing a small price on carbon. While the EU policy may marginally slow or reduce carbon emission growth, it will have little impact on drastically reducing carbon emissions without better technologies. In other words, creating global clean energy RD&D targets would address the two biggest issues facing

To give nations more of an incentive to invest for the collective good of the world, global climate change negotiators should work to provide countries the option to increase clean energy RD&D investments as an alternative to greenhouse gas emission targets.

global climate policy: green mercantilism and the inability of traditional climate policies to spur the clean energy innovations we need to mitigate climate change.

Create a Clean Technology Agreement Modeled After the Information Technology Agreement

Trade negotiators should also create a global free trade zone for clean energy products and services, modeled on the Information Technology Agreement (ITA). The ITA is a technology-specific free trade pact created in 1996 that gradually eliminated all tariffs on eight categories of information and communication technology products. And in its first 15 years, the ITA has had a significant impact on expanding global trade in ICT products. The ITA promoted ICT trade and investment, which in turn has driven innovation, opened supply chains, forged partnerships, increased employment, and accelerated economic growth. As such, from 1996 to 2008, total global trade in ICTs increased more than 10 percent annually, bolstered at least in part by liberalized trade. After successfully expanding the ITA (as currently being proposed), trade negotiators should quickly begin working on enacting a similar model for the global clean tech trade.

According to Matthew Slaughter, a Professor at the Tuck School of Business at Dartmouth, “The dynamism that the ITA helped bring to information technology could be unleashed in clean-energy technology. But governments have been moving in precisely the opposite direction to create a thicket of beggar-thy-neighbor trade and investment barriers in energy industries.”¹⁰³ A Clean Technology Agreement (CTA) would reverse this trend and provide two immediate benefits. First, the CTA would expand global clean technology trade. By eliminating tariffs, prices would decline and global demand would increase, leading to greater revenues that could be reinvested in more RD&D to develop even better clean energy technologies. Second, it could also reduce growing clean energy trade tensions and provide an avenue for negotiating a tariff-free global clean energy market.

And there are existing clean energy trade negotiations that could be used as a starting point. For instance, the recent APEC agreement among 13 of its member countries (but so far not including China) to set a goal of reducing tariffs on a list of environmental and clean energy technologies to below 5 percent by 2015 is a good first step in a process that could end with a CTA. The certified list of products that countries agree to reduce tariffs on could be expanded to include all clean energy technologies over an acknowledged time period. The list could then be expanded to include non-tariff green mercantilist policies as well.

CONCLUSION

If the global community of nations is serious about reducing global greenhouse gas emissions, rolling back green mercantilism must be a top priority. We can't reduce global greenhouse gas emissions without significantly cheaper and better clean energy technologies and we won't get the clean technologies we need without a robust “good” clean energy innovation system. While the short-term appeal of mercantilist, subsidized clean energy is alluring, especially for those who are deeply committed to making any advances in fighting climate change, green mercantilism policies hurt, not help clean energy innovation.

ENDNOTES

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