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## How Commerce Can Save the Climate

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The Case for a Green  
Free Trade Agreement

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## The Case for a Green Free Trade Agreement

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Crisis looms for the planet. In November 2022, world leaders met in Egypt at the UN's annual forum on climate change, known as the Conference of the Parties. Much like the previous 26 rounds of negotiations, COP27 did little to solve the world's environmental emergency. The summit marked another failure to secure meaningful commitments. It is now virtually certain that countries will fail to reach the long-standing goal of limiting average planetary warming to 1.5 degrees Celsius. A UN Environment Program report from October 2022 projected that current climate pledges will result in planetary warming of approximately 2.5 degrees Celsius by the end of the twenty-first century. The damage done by the past

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inaction of governments is increasingly palpable and irreversible, but that is no reason to give up.

Humanity must change its habits of consumption to limit greenhouse gas emissions. Replacing carbon-intensive goods and services with green counterparts (that is, products made with dramatically reduced or no carbon emissions) will help curb overall global emissions. Indeed, some of the world's leading climate voices are more openly acknowledging the necessity of such a transition. Last year, in an unusual move, the annual climate-assessment report of the UN's Intergovernmental Panel on Climate Change included chapters on efforts to create new environmental goods and services. And promising discoveries have sparked hope for future progress. In December 2022, U.S. scientists announced the breakthrough, after decades of trying, of the first-ever controlled nuclear fusion reaction. Nuclear fusion technology, however, will not be commercially viable anytime soon.

The world cannot wait any longer to forestall the coming climate crisis. Countries must accelerate the invention and deployment of low-cost green products in key areas, including energy generation, distribution, and transportation. Chief among the needed policies is the implementation of a meaningful world carbon price, in the form of a charge on greenhouse gas emissions. Such a price would make new green products cheaper than existing carbon-intensive ones. Without it, the pace of any energy transition would continue to be alarmingly slow: inventors will not have sufficient financial incentive to make bold bets in their research and development, and companies will drag their feet in adopting existing green technologies.

But the prospect of a high and harmonized world price on carbon is not on the horizon. In the United States, for instance, imposing an economically meaningful carbon price is unfeasible, at least in the medium term. The political right derides carbon prices as an intrusive new form of taxation, whereas the political left sees them as tacitly condoning the continued use of fossil fuels.

A more immediate and practical solution would be a free trade agreement for green technology. Under the auspices of the World Trade Organization, countries should expedite necessary inventions and lower the cost of green products by establishing an accord that liberalizes trade in green-tech products, investment in environmental industries, and the immigration necessary to foster entrepreneurship and build skilled workforces. Think of this as a green technology version of the Information Technology Agreement (ITA), a WTO deal initially signed by 29 countries

in 1996 that eliminated tariffs on hundreds of information technology (IT) goods. Governments have struggled to muster the necessary political will and capacity to address the climate crisis. It is time to allow the global market to speed the transition to a green economy.

#### GREEN ENERGY, RED TAPE

Too many countries impede the creation and production of low-cost green goods by erecting barriers to international trade and investment. The United States has been a leading culprit in this regard.

For years, the United States has been restricting the importation of low-cost solar panels and other environmental goods, especially from China. In 2012, the U.S. government concluded an investigation into whether China was unfairly subsidizing local manufacturers of solar panels and parts, in violation of China's commitments to the WTO. After finding that China was indeed running afoul of WTO rules, the United States imposed tariffs on Chinese solar imports. Those restrictions were extended in 2014 to imports from Taiwan after U.S. officials determined that the guilty Chinese companies had shifted production to Taiwan to evade U.S. tariffs. In 2018, U.S. President Donald Trump expanded those tariffs and extended their reach to imports from almost every country on the globe. Around that time, the United States levied new tariffs on other environmental products, such as material for wind-turbine towers from Canada, South Korea, and Taiwan.

More recently, the U.S. Inflation Reduction Act of 2022 provided tax incentives to companies and consumers to buy electric vehicles and other environmental products—but only if the vehicles are ultimately assembled in North America and if their batteries contain enough materials processed in the United States.

These Inflation Reduction Act provisions have provoked fury in many European capitals. The European Union is now claiming that several key parts of the IRA, including tax credits and subsidies, violate WTO rules on discrimination against imports. Many EU leaders are now demanding not just a WTO investigation but retaliatory measures against the United States. In December 2022, Ursula von der Leyen, the president of the European Commission, seemed to hint at a tit-for-tat response: “We also need to act to ensure the European Union keeps its global leadership in the clean-tech sectors.” The EU's new carbon border adjustment tax, which will levy tariffs on imports based on their carbon emissions, reflects the region's assertiveness in advancing climate policy.

Such talk is not propitious. Unfortunately, many governments have a history of erecting investment barriers in the energy industry, for instance, by limiting foreign investment in electricity generation and distribution. Others provide loans and fiscal support to firms deemed to be national energy “champions.” As a result, energy companies have often focused on political strategies rather than business ones, seeking to curry favor among policymakers instead of developing strategies for reducing emissions. Today, environmental and energy companies should not spend time and resources navigating trade barriers. As the planet faces increasing peril, they should accelerate the energy transition as boldly as possible.

International trade in electricity could also facilitate that transition. Just as the abundant winds of the United States’ Great Plains region and the ample solar energy of the Southeast could, if fully harnessed, power much of the Eastern Seaboard, so, too, could the underexploited potential of hydropower in the Canadian provinces of Quebec and British Columbia help address the electricity needs of cities in the U.S. Northeast and Northwest. But connections between the Canadian, Mexican, and U.S. electricity grids remain poorly developed. In 2020, the United States renegotiated the North American Free Trade Agreement with Canada and Mexico. The result—the U.S.-Mexico-Canada Agreement—did not expand North American trade but rather impeded it by applying more stringent rules regarding the national origin of parts for cars and other goods. The USMCA has a 270-page chapter on rules of origin but devotes just one page to environmental cooperation and green goods and services. Washington missed an opportunity in this accord to fortify regional trade in green electric power. It should seize that chance now by working with its neighbors to improve the integration of electricity grids. Allowing electricity to flow freely across national borders would lower energy prices and mitigate shortages. Such cross-border flows do exist. But they are intermittent and small.

#### TAKE A PAGE FROM TECH

World leaders concerned about climate change should note the dynamism of the IT industry that churns out new product innovations while lowering costs for producers and, in turn, for consumers. Not coincidentally, the sector is truly global, with elaborate networks of production, investment, and people spanning borders.

Much of the success of the IT sector over the past decade can be chalked up to free trade. The WTO’s tariff-busting ITA eventually

expanded from 29 to 82 countries, covering roughly 97 percent of world trade in high-tech products. In 2015, over 50 members concluded an auxiliary ITA agreement, known as ITA-2, that widened coverage to an additional 201 products valued at over \$1.3 trillion a year. The ITA remains the WTO's most comprehensive free-trade agreement.

The ITA helped spur innovation, trade, and investment around the world. Through the agreement, companies invented new goods and services and then grew global production networks to scale up, reduce costs, and benefit from comparative advantage.

Skill-abundant countries, such as the United States, tend to specialize in designing technology, whereas labor-abundant countries, including China, concentrate on assembly. For example, Qualcomm, a U.S. chipmaker, benefits from the ITA by designing chips for mobile phones in San Diego, contracting out the chip manufacturing to Taiwan, and having the components assembled in China before the finished products are exported worldwide. Without the ITA, trade in components would have been taxed at each link in the supply chain, as they moved from the United States to Taiwan to China and to consumer markets. These cumulative trade taxes would have reduced the value of Qualcomm's investments in chip technology.

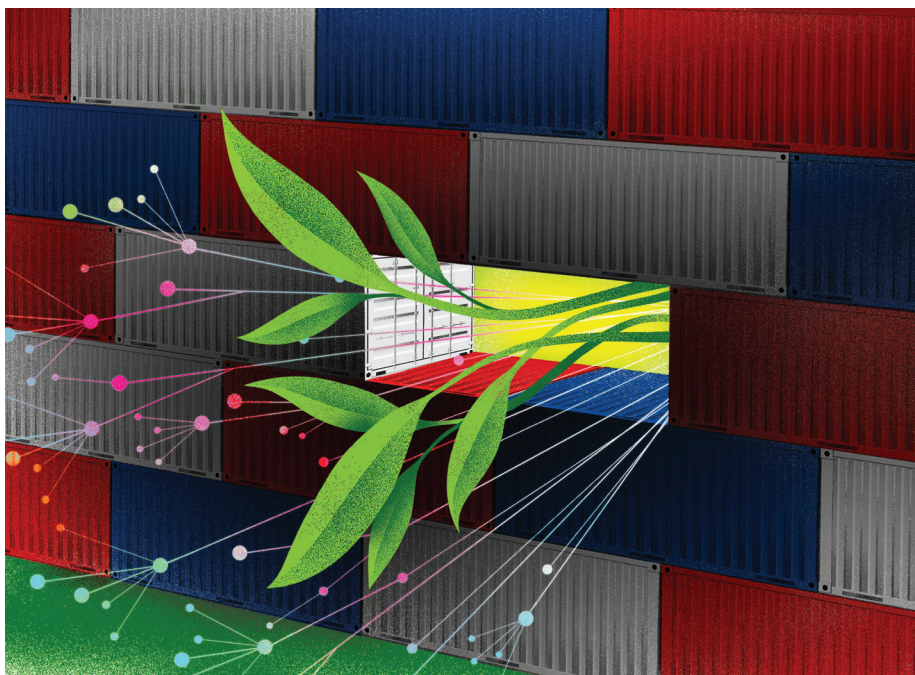
The ITA exemplifies the upsides of globalization. The agreement encourages innovation and reduces costs over time, benefiting not only tech firms but also other companies and consumers who use the technology. A WTO study calculated that between 1996 and 2015, the value of world exports of products covered in the ITA more than tripled, from \$549 billion in 1996 to \$1.65 trillion in 2015. Rising trade and investment flows led to lower prices. In the ten years after the ITA came into force, U.S. import prices relative to U.S. export prices stopped rising and began a decadelong decline—with falling import prices for IT products leading the way. Between 1996, when the ITA was created, and 2022, overall U.S. consumer prices rose by a cumulative 79.5 percent. But at the same time, the price of a personal computer in the United States fell by an astonishing 97 percent.

These striking declines in IT prices are the result of the rapid invention of new products and processes—and, with cause and effect running in both directions, of expanded globalization and freer trade. In many countries, such as China, Singapore, and South Korea, this virtuous cycle

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Washington is  
guilty of impeding  
international  
green trade.





between innovation and globalization helped spur growth in productivity and incomes, not only in the IT sector but across the whole economy.

Again, consider the U.S. experience. From 1973 to 1995, productivity for nonfarm workers grew at just 1.5 percent per year. From 1995 through 2007, this rate grew to an average of nearly 2.5 percent per year. A study by Harvard economist Dale Jorgenson concluded that IT-producing industries “have been the source of most of aggregate U.S. productivity growth throughout the 1990s.” Key to these economy-wide gains was the accelerated investment in IT goods and services throughout the economy. As IT became cheaper, governments, companies, and households “accumulated computers, software, and communications equipment much more rapidly than other forms of capital.” The IT industry alone contributed to nearly two-thirds of the economy-wide growth in productivity: about one-third of it directly, and about one-third driven by other industries investing more in IT goods and services.

But even more than flows of goods and capital, the migration of highly talented people contributed to the success of the IT industry. A 2007 study from the University of California, Berkeley, found that a quarter of all U.S. high-tech firms established between 1995 and 2005 had at least one foreign-born founder. In 2005, these new companies employed 450,000 people and generated more than \$50 billion in sales.

A follow-up study from the Ewing Marion Kauffman Foundation similarly showed that a quarter of the high-tech companies created between 2006 and 2012 were founded by immigrants.

Increased global flows of highly skilled labor allowed the ITA to have maximum impact. In 1990, Congress created the H-1B visa program, which supplied 65,000 work permits to specialized foreign workers for three-year stints, with the chance to renew the visa once. Major U.S. tech companies were the primary beneficiaries as workers in IT quickly dominated the take-up of H-1Bs. For example, Apple's iPhone was designed in California by an international team of electrical engineers and software developers; tremendous innovation was possible because the United States encouraged the arrival of the best talent.

#### TRADE FREE OR DIE

The ITA's success in IT can be reproduced in green products. Like-minded countries should create a similar agreement for green technology, built on the pillars of trade, investment, and immigration, that could harness the innovative power of globalization.

For the first pillar, this accord would start with a free trade deal in environmental goods and services. The WTO began pursuing a green free trade deal in 2001, but those negotiations accomplished little. Enthusiasm revived in 2014 when 14 WTO member countries announced their intention to pursue an Environmental Goods Agreement to eliminate all tariffs on green goods in trade among themselves. They launched formal negotiations later that year, and the group eventually expanded to include 46 countries. But the talks collapsed in 2016 amid disagreements over which goods the agreement should cover. For example, countries advocated to include products in which they were already net exporters.

A rejuvenated agreement for free trade in green products must build on these earlier efforts by being broad, dynamic, and unfettered. A new green free trade agreement must include not just goods but also services, such as the construction of green energy infrastructure and insurance for extreme weather events, and it must err on the side of including rather than excluding products. Consider bicycles. In earlier negotiations, China advocated that bicycles should be viewed as environmental goods and exempted from tariffs. But the United States and the EU resisted—perhaps because each had already been levying duties on imports of Chinese bicycles. But bicycles, including electric ones, provide transport without emitting greenhouse gases and therefore



belong in any effective green trade agreement. Many countries have a pet green sector they want to protect. By having an agreement that covers an expansive set of products, no individual country would be seen as gaining at the expense of others in the export and import of green goods.

A new green free trade agreement should include not just final products but also intermediate inputs and capital goods, which are items that make up a final product and the machines used to manufacture them. For example, an agreement should include equipment to capture the carbon emitted by steel mills and replacement parts for wind turbines. And the agreement should expand its list of covered products annually as new green goods and services are invented. Such flexibility will allow a green trade agreement to generate even greater impact than the ITA did. The original ITA did include intermediates and capital goods. It also called for members to meet periodically to discuss incorporating additional goods in the deal as more were invented. But such reviews stalled in 1998 because members could not agree on which products to add. By 2012, the ITA had finally become so stale that a sufficient coalition of signatories felt the urgency of reviving negotiations. It took four more years to agree to and implement the ITA-2 with an expanded list of covered products, such as video games that use a television receiver. Today, many business leaders and governments are clamoring for an ITA-3. A green free trade agreement should preempt such bureaucratic delays. Member countries must commit to annual reviews whose default is to automatically include new green products. Without annual and automatic expansions, a new green free trade agreement will soon become as outdated as the original ITA.

Additionally, a new green free trade agreement must not be neutralized by carbon border taxes. In December 2022, the EU agreed to levy such a tax. A worldwide tariff on carbon is impractical and hard to enforce, and it would undercut free green trade, a more feasible climate solution. For a new green free trade agreement to work, all the products it covers must be exempted from carbon border taxes.

The second pillar of a green free trade agreement should be unfettered cross-border flows of foreign direct investment in environmental goods and services. Many countries, such as China, explicitly restrict foreign investment in sectors deemed sensitive or strategic. Others, including India, indirectly prevent capital inflows by subjecting multinational companies to nearly insurmountable approval processes.

Trading green goods often requires services provided on site by the foreign seller, which can only happen if the seller has a foreign subsidiary. Therefore, liberalizing foreign direct investment in green sectors would boost green trade. For example, to import wind turbines from a Danish multinational manufacturer, a country needs a foreign subsidiary of the Danish company to be on hand to guide installation. Multinationals lead the way in green innovation. Loosening restrictions on foreign direct investment will make it easier for foreign affiliates to operate and spread the expertise of their parent companies.

A boost in manufacturing is one upside of progress in environmental technology, but for most countries, the creation of jobs and the overall value provided by green-tech services are more important. Take the solar industry in the United States. With a green free trade agreement, a U.S. solar company might lower the price of its product by importing low-cost solar panels from China instead of manufacturing them domestically. In turn, the company sells more solar panels, creating more jobs in the United States in solar panel installation and maintenance. A 2020 study from the Solar Energy Industries Association estimated that only 14 percent of all U.S. solar workers were employed in manufacturing, whereas two-thirds worked in installation and research and development. In 2021, the U.S. government predicted a 27 percent increase in solar-installation employment over the next decade, in contrast with a projected average growth rate across all U.S. occupations of just five percent. Governments should not try to hold on to manufacturing jobs with white knuckles. More jobs will be created through the productivity gains of a green free trade agreement, particularly in services.

The third pillar of a green free trade agreement should be the unencumbered movement across borders of highly talented people working in green industries. In the United States, immigrants generate more patentable ideas and technologies than do native-born workers—and these immigrants are more likely to found companies, which create jobs that benefit everyone. Skilled immigrants complement rather than replace skilled native-born workers. Immigrants were central to the success of the IT industry and will likely be pivotal for green technology as well.

As green technology becomes the locus of innovation, the sector will attract the best global talent, as IT has. In industries that are undergoing rapid technological change, the strongest firms flourish and attract skilled labor. Companies tend to innovate as their employees gather and exchange ideas in proximity to employees of other firms. As companies

become more productive, they draw more skilled labor. This virtuous cycle of innovation and growth achieves its maximum potential when the most talented workers are allowed to move across national borders through relaxed immigration controls. But in the United States, for instance, the H-1B program does not go far enough. Had the United States allocated more visas in recent decades, the ITA would likely have been more effective. Congress should avoid this mistake by doubling or tripling the annual allocation of H-1Bs.

On top of a green free trade agreement, countries should commit to funding research and production of some of the world's most promising green innovations, just as the United States hastened the discovery and manufacturing of COVID-19 vaccines through Operation Warp Speed. For companies attempting to create vaccines, the program reduced costs and uncertainty by providing standards that stipulated the research hurdles a company had to clear to receive government support. A similar initiative would accelerate the discovery, production, and cost reduction of green technology, complementing a free trade agreement. In a green Operation Warp Speed, countries would commit to purchasing the most promising technologies in long-duration energy storage, carbon capture, grid digitization, and broad-based electrification, no matter where the successful innovators are. The up-front commitment, made before the technologies are invented, would reduce uncertainty for innovators and short-circuit efforts by individual countries to limit support to their domestic champions.

Governments should also fund university education for engineers and scientists in the field of emerging green technology and train technical workers for jobs such as repairing wind turbines. In addition, governments should simplify regulations on green technology, for example, by making it easier to link new forms of electricity generation to the grid. Such government support would complement a global green free trade agreement without propping up specific companies.

#### INNOVATION NATIONS

A global agreement to liberalize cross-border flows of products, capital, and people would advance innovation and lower clean energy prices. Instead of lobbying for domestic protections, green companies could focus on global ideas, inputs, and customers. Firms and consumers would see the progress evident in smartphones replicated in green technologies such as hybrid vehicles and renewable power.

National security concerns about green technology, such as a fear of relying on other countries for energy needs, are overblown. In an industry as large and as rapidly growing as clean energy, no single country has all the talent and other resources it needs to be able to rely only on its own production. Climate change is the threat that most countries should be worried about. For the planet, what matters is maximizing the speed of invention, the scale of production, and the uptake of green goods and services.

It is now in vogue for political leaders to call for creating green jobs at home. But such efforts are misguided for two reasons—one old, one newer. The old reason is that government efforts to protect and nurture certain industries have largely failed over the long term: the target industries and companies often do not thrive, the per-job costs of government support often vastly exceed the wages of those jobs, and other countries often retaliate in a cycle that harms everyone.

The newer reason is that when it comes to addressing the climate emergency, the key issue is not which countries end up producing new clean goods and services. It is how many countries end up consuming them. Countries must stop chasing the long-elusive goal of selecting and supporting winning industries and companies. Instead, they must start focusing on the immediate imperative of inventing and deploying green innovations as fast and as broadly as possible.

Globalization will reduce the costs of critical green technologies. A 2022 study in the scientific journal *Nature* calculated the costs that arise when countries restrict “the free flow of capital, talent, and innovation.” The authors have estimated that the globalization of the solar photovoltaic supply chain lowered the cost of photovoltaic units, saving installers \$36 billion in China, \$24 billion in the United States, and \$7 billion in Germany between 2008 and 2020. Had tariffs been eliminated, the savings would have been greater. This study further estimates that if this globalization of solar production is not allowed to continue, global solar prices will be around 25 percent higher in 2030 than they would be if globalized production continues in its current state.

To meet the grave climate risks confronting the world, countries must enact bold new policies. Motivated by the gains from the ITA, the world should find clean energy solutions by quickly negotiating and implementing a green free trade agreement. What worked for smartphones and other tech products can also work for the planet. 🌍