The U.S. Asia-Pacific Rebalance, National Security and Climate Change

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The Security Benefits of Expanded Trade in Energy Efficiency in the Asia-Pacific Region

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The United States is several years into the project of reorienting and intensifying its longstanding engagement with the Asia-Pacific region. This "rebalancing" will make the countries of the Asia-Pacific more prosperous and more secure. The region includes the world's three largest economies (the United States, China and Japan) and accounts for 55% of global GDP and 44% of world trade.[1]Greater trade between the United States and Asian economies in technology that can increase energy efficiency has tremendous potential to enhance economic performance and economic security for all parties. It will also yield environmental and social stability dividends on both sides of the Pacific. However, trade in energy efficiency technology is currently hampered by a variety of factors. Also, its value is underappreciated in the broader strategy for U.S. economic rebalance. Expansion of trade in energy-efficient technologies should be considered a foundational goal of rebalance efforts and aggressively encouraged in Washington's new look east.

This article examines the obstacles and opportunities for increasing the export of U.S. energy efficiency technologies to developing Asia. It lays out the economic, environmental and human security benefits of doing so, both for the U.S. and for partners in Asia.

The Economic Rebalance

In a 2011 *Foreign Policy* article on the Asia-Pacific, former Secretary of State Hillary Clinton pointed to the economic dynamism of the region as a key consideration in the rebalance.[2] The United States lags far behind dynamic, industrializing Asia-Pacific economies such as China, India, Indonesia and Vietnam in growth. The recent global economic slowdown has diminished their pace of economic expansion. However, gross domestic product (GDP) growth rates in developing

Asia still significantly outpaced that of the United States over the last decade. During this time GDP growth rates in developing Asia ranged from 6.5% to 11.5% while U.S. rates moved between -2.8% to 3.8%.[3] U.S. policymakers seek greater investment in the Asia-Pacific, particularly its developing economies, as a core strategy for economic growth and security.

The Asia-Pacific region is already the top destination for U.S. exports, according to the U.S. Census Bureau. Direct investment between the United States and Asia is on the rise, with financial flows increasing by 81% over the last decade, according to the U.S. Bureau of Economic Analysis. U.S. investment in the region increased 17% to $3.4 billion last year. However, that was far outpaced by the $102.5 billion invested by the other top ten Asian economies. There is tremendous opportunity for the United States to expand investment in the region.

To increase trade with Asia-Pacific countries the United States is advocating for a more hospitable trade architecture in the region. This includes the removal of discrimination against American companies operating in Asia and greater intellectual property protection. Additionally, U.S. leaders are urging greater regulatory and customs alignment between the United States and other Asia-Pacific nations. With such reforms, the economies of this region will offer expanded opportunities for growth. To enhance the sustainability of such growth, the U.S. should aggressively expand trade in energy efficiency technologies. Increased renewable energy and climate change resiliency are laudable and related goals. However, U.S. policymakers should focus more explicitly on trade in energy efficiency technologies to deliver greater strategic benefits, and greater security, in the rebalance.

Focus on Energy Efficiency

Industrializing Asian economies, particularly China, have customarily performed poorly on energy efficiency. On average they require almost twice as much energy for each unit of economic growth than the economies of North America and Europe.[4] Efficiency is improving; intensive energy use, however, remains a serious drag on economic growth.

Governments across developing Asia are crafting economic policy to help them shift from a reliance on cheap labor in a globalized manufacturing sector to higher-performing and more efficient development models. Such models can sustain levels of overall growth as populations in these developing economies become more affluent. Replacing people with machines is already underway. However when the machines themselves perform poorly on energy efficiency, the impact of investment in upgrades is limited.

Poor energy efficiency in Asia is a major contributor to the choking pollution levels that inhibit the quality of life the region's dash for economic expansion aims to achieve. Out of 230 Asian cities evaluated for particulate emissions using 2008 data, only two met existing World Health

Wind turbines in Guazhou County, China. May 2013. WikiMedia Commons / Popolon

Organization (WHO) Air Quality Guidelines.[5] The average concentration in the air of particulate matter greater than 10 micrometers in size for all 230 cities was 4.5 times the WHO guidelines.[6] Indian cities performed particularly poorly and Bangkok was cited in the group's scorecard for particularly poor air health performance.[7] Such pollution is a mobilizer for increasingly educated and politicized urban populations to contest current economic management and some of the most degrading environmental practices.

In China, for example, pollution-related protests and activism are a concerning source of social unrest for state leaders. Government officials have closed some of the most pollution-intensive factories to address this concern.[8] However a broad push to close pollution-intensive factories, or halt plans for new emissions-intensive coal power plants, is inconsistent with burgeoning economic growth.

Despite the challenges associated with increasing energy efficiency, Asian leaders are nevertheless prioritizing this goal. This will help them address the twin problems of movement up the "ladder of economic development" and leveraging investment to limit pollution growth.[9] Success in these two domains will have a direct economic security benefit as well. It will expand economic resilience to withstand energy price spikes. It will offer more electricity supply reliability as inefficient and inconsistent equipment in the manufacturing sector, and in buildings, is replaced. Also, it will limit devastating environmental degradation, offering a more sustainable path for economic development and use of natural resources.[10]

Concerted programs to expand energy efficiency have shown sharp reductions in peak electric power demand usage and emissions. For example, a series of demand-side management programs implemented in California in 2001 succeeded in dropping peak demand use by 10% in less than a year.[11] This was accomplished through efficiency efforts such as consumer education and incentivizing less energy-intensive appliances and lighting, according to research from the U.S. Department of Energy's Lawrence Berkeley National Laboratory.[12]

Implementation of such programs may be replicable in various forms in developing Asia. China, for its part, is working aggressively to improve energy efficiency. China's 12th Five Year Plan (2011-

2015) includes original language on sustainable development, with energy-intensive investment identified as a top priority for the economy.[13] One of the explicit goals of the latest Five Year Plan includes a 16% improvement in energy intensity per unit of GDP.[14]

Energy Efficiency Investments

It is difficult to quantify the existing degree of energy inefficiency in Asia and the volume of trade with foreign companies in technology to expand energy efficiency. Such data are obscured by a number of data quality issues and by currency controls on the renminbi. Additionally, restrictions on debt financing for international companies mean that foreign investment in Asian energy efficiency takes a more project-based, rather than broad-scale rollout, approach.

The Energy Transition Research Institute estimates that the market in China for investment projects related to energy efficiency, for example, was worth roughly $20 billion in 2010, and could hit $90 billion per year in 2020.[15] In many cases, investment to date has been in replacing existing distributed generation infrastructure, like diesel generators, and upgrading factories that would otherwise be closed. However, building efficiency improvements, such as improved climate control and lighting, as well as planned upgrades to the transmission grid, will be part of the next generation of technology investments for energy efficiency.[16]

There is a great deal of anecdotal evidence for growing U.S.-Asian ties on large-scale projects to expand energy efficiency. For example, in what it calls a sign of its commitment to the region, GE Energy has located one of its four global research centers in Shanghai.[17] In March 2013, GE Lighting installed energy-efficient signage on 400 storefronts in China owned by Hong Kong-based Watsons. This reduced energy consumption by roughly 67%.[18] That is a significant project, and a sustained uptake of new financing models and use of international energy service company models (ESCOs) will see the proliferation of many more such projects.[19] Changes in the law over the last decade that have encouraged the inclusion of international firms in Chinese ESCO financial models virtually assure this growth.[20]

U.S. Technology Solutions for Asian Energy Inefficiency

With the price of labor rising across Asia, perhaps most significantly in the workhouse of the world along China's coast, investment in foreign-made equipment with much higher energy efficiency profiles is on the rise. Low labor costs have assured product competitiveness for many years, despite energy inefficiency. This economic growth model of export-oriented labor-intensive manufacturing requires modification as the costs of labor rise. Increasing the energy efficiency of production, from the very low current levels, is a clear way to maintain competitiveness.

Developing Asian economies are turning to foreign producers of higher-performing energy efficient technology to solve some of their productivity and environmental degradation problems. New gas turbine technology developed by foreign companies, for example has made a notable increase in developing Asian economic efficiency.[21] But most foreign technology designed to increase Asian economic efficiency has focused on equipment upgrades at power utilities and on building control improvements in the commercial sector.[22]

In China, manufacturers and consumers compelled to meet central government goals on emissions and energy efficiency are particularly motivated to forge new ties with innovators abroad. Economically mature Japan is also a serious consumer and producer of energy-efficient technology. It has a strong track record of exporting energy efficient technologies to developing Asian neighbors, including India, Indonesia, Vietnam, Cambodia, Malaysia and others.[23] This type of commercial activity has become a comparative advantage for Japan. It presents a model the U.S. should strive to emulate with developing Asian economies.

South and Southeast Asian states are also attracting foreign technology to expand energy efficiency. For example, international firms have been asked to bid for substantial contracts in retrofitting existing infrastructure in countries such as Vietnam, where energy efficiency performance has been poor.[24] The Asia Development Bank has set aside $40 million for projects at five cement and two steel plants in the country, encouraging bids to upgrade energy efficiency at these industrial sites.[25]

As many innovators of energy-efficient technology are American, U.S. firms are increasingly developing products and industrial services to expand energy efficiency for industrializing Asian economies. This is becoming an important driver of business between U.S. and Asian firms. It also has the potential to serve as a substantial part of the American economic rebalance to Asia in the future. In a 2010 White Paper, Johnson Controls pointed out several policies that have driven the expansion of trade in energy efficiency technologies in Asia for U.S. companies.[26] These include the 2008 Chinese Energy Conservation Law, the Clean Development Mechanism for Asian countries signatory to the Kyoto Protocols, the Indian Climate Action Plan and the Japanese renewable portfolio standard.[27] China, long labeled by the United States and others as protectionist when it comes to the clean tech sector, is particularly notable in its signaling that it will open up to private investment to promote efficiency investment.[28]

Energy Efficiency Enhances Social Stability

Energy efficiency can contribute to quality of life and social stability in the Asia-Pacific region. The reduced emissions associated with greater efficiency can improve environmental quality and calm social instability associated with damaging pollution. Additionally, increased energy efficiency can help to mitigate the environmental effects of climate change. These effects can act as "an accelerant of instability" by introducing stressors on societies and governments ill-equipped to adapt to

such changes.[29] Asia, with a major portion of its population located in low-lying coastal areas, is especially prone to sea level rise, changes in food supply, severe weather and other climate change-related environmental impacts, which could affect stability and security.[30]

In the event of natural disaster or an attack on energy infrastructure, a more energy-efficient economy will be less vulnerable and better equipped to manage energy and power disruptions.[31] Energy efficiency was a central recommendation issued by the Nomura Research Institute for recovery and resiliency following the 2011 Fukushima disaster in Japan.[32] Energy efficiency can serve as a kind of insurance policy against major economic spikes or disruptions.

The United States should leverage and promote expanded energy efficiency investments in developing Asia-Pacific countries as part of its rebalance. Such investments are not merely economically beneficial to U.S. technology developers and the developing Asian economies into which such technologies are sold. They also deliver environmental and social stability benefits for the region. Moreover, they complement the U.S. Defense Department's commitment, as articulated by Secretary Chuck Hagel at a recent Association of Southeast Asian Nations meeting, to energy efficiency in combating climate change and its impacts.[33]

Conclusion

Collaboration among stakeholders will be necessary to overcome the complexity of planning, financing, and implementation of investment in energy efficiency. Not only companies, but increasingly regulators, diplomats, and political leadership will need to collaborate. Urgency arises from the need to sustain economic growth and limit harmful emissions in Asia. A top priority for U.S. policy makers, including trade negotiators and security strategists, should be increasing penetration of U.S. energy efficiency technologies in developing Asia-Pacific economies. Trade, regulatory, and legal measures can all be used to this end.

Global lending institutions have already begun to identify networks of energy efficiency technology innovators and investors for Asia, and to prioritize them. Increased energy efficiency will improve economic resiliency, environmental quality and human security in these countries. U.S. policymakers should facilitate expanded investment of this type. Such efforts will significantly enhance U.S. benefits of the Asia-Pacific rebalance and help to assure its success in the years ahead.

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Notes

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