

China

Overall Rank: 2
Type: Large Market; Small Market Share

While China remains a frustrating market with considerable barriers, the sheer size of its renewable energy market presents unprecedented opportunities for U.S. exporters. In fact, despite a noted lack of market share, China ranks #2 on ITA's list of top renewable energy export markets through 2015 despite several ongoing competitiveness challenges, including insufficient intellectual property rights enforcement and a strong predilection to purchase technology at the lowest possible cost regardless of quality. While some U.S. exporters can find enormous success in China, others are confronted with extensive barriers and disappointment.

Sub-Sector Rankings

Ethanol	Geothermal	Hydropower
28	18	11
Pellets	Solar	Wind
13	4	1

China is both the world's largest supplier of and the largest market for renewable energy technologies. Over the next two decades, it will install more wind, solar, and hydropower capacity than any other country. As such it will remain a critical market for U.S. exporters well into the future. Yet despite considerable market growth, the Chinese renewable energy market can be difficult for American exporters to enter successfully.

The complexity of the Chinese market and a general lack of market share enjoyed by U.S.-based firms often makes doing business in China difficult. While the market has supported several export deals in the past, including turning previously small companies into global players, it is also characterized by a large number of firms that were rendered unsuccessful due to intellectual property infringements.

American exporters are encouraged to be constantly mindful of threats to their intellectual property, hire local counsel, if necessary, and develop China-specific strategies for market entry that are consistent with the threat level associated with their intellectual property.

Overview of the Renewable Energy Market

Encouraging renewable energy generation has been a priority for China since the 12th Five-Year Plan was announced in 2010. The plan created a number of

ambitious targets, including 100 GW of grid-connected wind capacity and 21 GW of solar capacity by 2015. In early 2013, the solar capacity target was revised upwards to 35GW to boost domestic adoption and aid China's solar industry. The plan also called for 420 GW of hydropower and 200 GW of wind, 50 GW of solar and 30 GW of biomass and waste-to-energy by 2020 – some of the highest targets in the world. In 2013, China's National Energy Administration reaffirmed these targets, announcing that China was on pace to meet or exceed each mandate.¹

To ensure its goals are met, China has implemented a variety of policy tools. Competitive auctions have been utilized to decide power tariffs for wind and solar projects (onshore wind and solar PV have since been removed from this system). Feed-in-tariffs (FIT) have been developed for onshore wind, biomass and waste-to-energy, and solar PV projects.

And through the 2009 Golden Sun Program, China has offered capex subsidies for residential solar installations, driving the rooftop PV market. On Oct 29, 2013, China's National Energy Administration issued a "solicitation letter of photovoltaic power construction scale in 2013 and 2014" that requests the total PV installation capacity to reach 12GW in 2014, including 8 GW of distributed PV projects and 4GW of utility-scale projects.

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China is also considering a renewable energy quota system similar to a renewable energy portfolio standard. The system would create renewable energy targets for the top 14 power companies in China (representing two-thirds of the market) and the four grid operators. If such a program is implemented, identifying opportunities to engage these firms will be important for U.S. renewable energy exporters, as these could be captive buyers of clean energy technologies for the foreseeable future.

Challenges and Barriers to Renewable Energy Exports

Despite the growth expected in China's renewable energy market, U.S. exporters face several important challenges that limit U.S. competitiveness. First, China is still recovering from vast oversupply in its wind and solar markets (the size of its domestic manufacturing base has contributed substantially to the oversupply of these technologies globally). As a result, Chinese industry has entered a period of intense restructuring. Suntech, the largest Chinese solar company, filed for bankruptcy in March 2013 despite receiving billions in direct loans from the Chinese Government. ITA expects mergers and acquisitions within China to continue over the next few years, as demand for products slowly reaches the availability of supply.

To counter the oversupply of wind and solar capacity, China has moved forcefully to promote domestic consumption and to protect its domestic manufacturers from foreign competition, causing trade tensions to rise in Europe and the United States.² The litigious environment created by these cases has further clouded the ability of U.S. suppliers to do business in China.

Additionally, the lack of sufficient protection and enforcement of intellectual property rights in China remains a consistent barrier for many U.S. exporters. U.S. companies, especially small- and medium-sized firms, should be cautious when exporting to China, ensuring that they have the proper legal protections and strategy in place before entering the market.

In the renewable fuels industry, China restricts ethanol imports for fuel and maintains state ownership over its existing ethanol plants. As a result, China ranks only 28th on ITA's list of top ethanol export markets through 2015 and exporters are encouraged to look elsewhere for more attractive opportunities.

Opportunities for U.S. Companies

Despite relatively high transportation costs, U.S. companies continue to have success exporting high value-added products. As products become increasingly commoditized, the opportunity to export from the United States decreases exponentially.³ Companies that offer niche services like grid reliability, engineering, or environmental consultancy may find some opportunities in emerging locations (i.e., second or third-tier cities) where U.S. products and services may face less direct competition from Chinese suppliers.

Solar

China already stands as the largest producer of solar technologies and is quickly becoming the largest consumer as well. The surge in local demand has been facilitated by the Chinese Government and has left very few opportunities for U.S. exporters relative to the market as a whole. Under the Golden Sun Program, for example, the Government not only provided incentives to consumers, but also selected the module supplier through a centralized process in which no U.S. supplier has ever won a contract.

Despite ranking China fourth in terms of overall solar exports, exports in the sector will be the result of sheer volume – not on the relative competitive position of U.S. exporters. Companies are encouraged to consider whether China is the right market for them, as other markets may be easier to enter and hold the potential for stronger export competitiveness.

Wind

No market is expected to support as many wind exports as China. China's vast market and an unprecedented investment in the sector should support considerable exports from the United States, even in spite of very little U.S. market share. As China shifts its focus to small- and medium-sized wind farms, increased technical and safety standards, and newer technologies, the demand for innovative products and technical components may provide new opportunities for U.S. companies.⁴ Many older Chinese wind farms, for example, are facing low capacity factors and frequent operational problems. Demand for higher-efficiency retrofits will likely increase as a result.⁵

Hydropower

China has the largest hydropower resource in the world and the largest pipeline of projects, totaling 80 GW of expected capacity.⁶ U.S. exporters may find opportunities in the design, engineering, and

development of hydropower projects in China. U.S. engineering and construction firms are often globally competitive and these services account for a large portion of a hydropower project's costs. Nevertheless, according to ITA's analysis, China will account for less than 1 percent of total hydropower exports through 2015. Almost the entire Chinese market will be captured by Chinese firms.

Biomass

ITA anticipates a further increase in demand for biogas recovery and utilization technologies, creating a potential export opportunity for U.S. firms with anaerobic digester or gas purification technology.⁷

China has set ambitious targets for biomass production, including 2 GW of biogas installed capacity and 3 GW of waste-to-energy by 2015. Additionally, there are signs that China is interested in transitioning some of its coal-fired power plants towards biomass co-firing – all of which should create some opportunity for U.S. feedstock exporters in the near-term.

Upcoming Renewable Energy Trade Events for Exporters interested in China:

- **Solarcon 2014**; *March 18-20, 2014* – Shanghai
- **Wind Power China 2014**; *October 26-28, 2014* – Beijing

For more information, please visit www.export.gov/reee or www.export.gov/china.

2014 Renewable Energy Top Markets Report



This *Top Markets* case study is part of a larger report that includes rankings of 75 different markets in terms of overall U.S. renewable energy exports through 2015, as well as specific rankings for the ethanol, geothermal, hydropower, biomass pellets, solar and wind sectors. To access the full report, visit <http://export.gov/reee/topmarkets>.

¹ Bloomberg New Energy Finance, "Onwards and upwards: China's renewable targets for 2013," 23 January 2013.

² Ibid.

³ Bloomberg reference in 2012 study

⁴ Global Wind Energy Council, "Global Wind Energy Outlook 2012," November 2012.

⁵ Greentech Initiative.

⁶ *Bloomberg New Energy Finance*, "The Future of China's Power Sector" (August 27, 2013) pp. 10

⁷ Ibid.

About the Office of Energy and Environmental Industries

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