

# Chile

**Overall Rank: 4**

Type: Large Market; Large Market Share

Though a relative newcomer to the global renewable energy market, Chile’s clean energy potential has the country poised to become a significant market for U.S. exporters. Chile’s open economy combined with its lack of domestic manufacturing capacity for renewable energy goods indicate that should development occur, U.S. exporters will find considerable opportunities. In particular, solar exporters across the supply chain are likely to find opportunities in Chile, as well as small hydropower developers, early-stage geothermal firms, and wind turbine manufacturers.

### Subsector Rankings

Ethanol	Geothermal	Hydropower
21	7	2
Pellets	Solar	Wind
N/A	2	14

Chile needs to double its energy output in the next 15 years to meet expected demand growth. With almost no fossil fuel resources, the country currently relies on imported electricity to meet its energy needs.

Electricity imports have grown dramatically as energy needs have risen – increasing from 42 percent in 1980 to almost 75 percent today.

Most imports are in the form of natural gas from Argentina.<sup>1</sup> Several of Chile’s large mining companies, the largest drivers of GDP growth in Chile, have even resorted to imported diesel generation to meet their energy needs, no doubt reducing their profitability. The lack of control over the country’s energy supply has led to rising prices and a sense of intense frustration on the part of many Chilean energy consumers.

As a result, the Chilean Government is committed to developing new renewable energy projects and to using off-grid renewable energy technologies to replace existing diesel generation. ITA expects Chile to support exports in every renewable energy power generation sector through 2015; ranking it in the top 10 markets for solar, hydropower, and geothermal exports.

### Overview of Renewable Energy Market

Chile enjoys one of the world’s strongest resource bases for renewable energy. The Atacama Desert in

Northern Chile is widely considered the world’s best solar resource, and similarly strong wind, geothermal, and hydropower resources exist in the country as well. In fact, should Chile develop its full renewable energy potential, it could meet all of its projected energy demand with clean energy generation and have extra power left over to export to neighboring countries.

The Chilean Government has recently begun emphasizing the development of clean energy. A particular emphasis has been placed on low-cost, baseload renewable electricity generation to meet the needs of the mining sector. While the most obvious choice would be new hydropower dams, plans for new dams have been put on hold due to environmental concerns. Instead, concentrated solar power and distributed generation systems have seen tremendous interest, indicating a likelihood of future growth in these sectors.

The Chilean Government passed its first renewable energy law in 2008, creating a national target requiring five percent of Chile’s energy to come from non-conventional renewable energy (defined as renewable energy excluding large hydropower above 40 MW) by 2012 – a target set to increase to 10 percent by 2024. Though some political debate occurred in 2011 and 2012 on whether to increase the target to 20 percent by 2020, the President of Chile ultimately decided to

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reaffirm the lower target in Chile's *National Energy Strategy*, which was released in February 2012.<sup>2</sup> The Strategy is agnostic on the types of renewable energy development it foresees, although most analysts predict that solar energy – despite little development to date – should see the most growth over the coming years.

### Challenges and Barriers to Renewable Energy Exports

Despite its tremendous resource potential, Chile has only deployed 880 MW of non-large hydro renewable energy technologies to date. The industry has been slowed considerably by three interrelated factors, all of which must be addressed to facilitate the level of investment needed for Chile to meet its clean energy goals.

First, local financiers have historically been unwilling to invest in renewable energy projects. This is partly a “first-mover” problem, as local banks do not want to take the risk associated with investing in a “new” technology. The situation is aggravated by a frequent unwillingness of utility companies to sign long-term power purchase agreements with developers, making projects risky for investors. This situation appears to be changing quickly, however, as recent projects or acquisitions by First Solar, SunEdison, and Nordex USA, have driven investor interest in the Chilean market.<sup>3</sup>

Second, because Chile's electricity distribution and transmission industry is entirely privatized, the country faces hurdles to incentivizing the development of new grid transmission lines, particularly to remote areas where renewable energy projects are often located. Chilean utility companies who have not dealt with a significant amount of renewable energy before have shown signs of uneasiness about allowing more renewable energy onto their electricity grids. Fortunately, Chile's *National Energy Strategy* identified this issue and called for the expedited construction of additional transmission lines.<sup>4</sup>

Finally, as Chile's economy continues to grow, many citizens have become more closely engaged with efforts to protect the country's tremendous environmental resources, particularly in Southern Chile. As such, several projects – particularly large hydropower projects – have faced considerable public backlash.<sup>5</sup> Small hydropower development has thus become an important topic, as it would help alleviate some of these tensions while also providing baseload electricity to drive additional economic growth.

### Opportunities for U.S. Companies

U.S. companies are already well-positioned in Chile due to the existing U.S.-Chile Free Trade Agreement and the strong bilateral commercial relationship between the two countries. As a result, American companies are often welcomed to Chile as they are widely seen as having leading technology and experience developing new products.

#### Solar

ITA expects the solar industry to account for the vast majority of U.S. renewable energy exports to Chile in the near-term. Though only a small number of solar projects currently exist in Chile (mostly for rural electrification purposes), a pipeline of over 3 GW of new projects should drive export growth going forward. With no current solar manufacturing capacity, all of Chile's solar development will be met by imports in the short-term; thereby explaining one of the reasons why ITA ranked Chile among its top solar exports markets.

ITA believes that solar projects, built to support Chile's mining operations in the North, provide an important opportunity to catalyze the Chilean market into the future. A recently announced 100 MW solar project developed by SunEdison for CAP, a large mining company, is a perfect example. The project, partially funded by OPIC, will be the largest solar project in Latin America, and should allow Chilean decision-makers – i.e., other mine operators, Chilean bankers, and other industrial consumers – to see firsthand the benefits of solar energy, making future investments in the sector more likely.

It will be important for solar exporters to keep Chilean decision-makers aware of both the latest U.S.-developed solar technologies and of the expected price declines of solar products. While investor interest is certainly increasing, solar exporters must demonstrate the ability of solar technologies to meet the specific needs of Chilean consumers, particularly those of mining companies. This will likely require an effort to develop energy storage alongside solar installations to provide continuous power to mining operations.

#### Wind

Although Chile did not commission any new wind projects in 2012, 530 MW of wind projects have secured financing and are expected to come online in the near-term. Several firms have also purchased operational or close-to-operational wind projects in

Chile with the intent of updating or outfitting the project with their own technology.

#### Hydropower

ITA expects small- to medium-sized hydropower companies to find opportunities for developing projects in the short-term. Chile ranks behind only Canada in terms of projected U.S. hydropower exports through 2015. Run-of-river hydropower projects in low-flow areas like irrigation and already constructed navigational dams should provide the most export opportunities.

#### Geothermal

Despite its vast geothermal potential, to date no geothermal projects have been commissioned in Chile or anywhere else in South America. A 2012 tender generated \$250 million in investments for 20 geothermal energy exploration concessions. The concessions have a two-year expiration date, which ITA believes will jump-start the geothermal market and push Chile to seventh place on ITA's list of top geothermal export markets through 2015.

Most of Chile's geothermal development will be brought online in the 2016-2020 timeframe.<sup>6</sup> Since geothermal purchasing decisions are often made 1-3 years prior to a project coming online, many of these projects could provide important export opportunities for U.S. companies in the near-term.

#### **Upcoming Renewable Energy Trade Events for Exporters interested in Chile:**

- **IFT Energy & Water 2014**; July 22-24, 2014 – Antofagasta, Chile

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### **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>.

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<sup>1</sup> Robin Yapp, "Chile's Uncertain Renewable Energy Future," *Renewable Energy World*, 9 April 2012.

<sup>2</sup> Government of Chile, *NES*, pp. 17-20.

<sup>3</sup> BMI; "Industry Trend Analysis – Chile Renewables: Strong Fundamentals for Growth," *Business Monitor International*, 13 February 2013 and Stephen Lacey, "Three Charts to Help You Understand Chile's Emerging Utility-Scale Solar Market," *Greentech Media*, 12 February 2013 and "Nordex Takes Part-Ownership of Chilean Wind Project," *Power Engineering International*, 11 September 2012.

<sup>4</sup> Government of Chile, *NES*, pp. 28-29.

<sup>5</sup> Yapp.

<sup>6</sup> Country Energy Profile: Chile – Clean Energy Information Portal ([www.reegle.info/countries/chile-energy-profile/CL](http://www.reegle.info/countries/chile-energy-profile/CL))

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