Chile's Renewable Energy Transformation Leaves Much to Be Desired

- Meghan Rowley

A recent New York Times article praised Chile for its innovative renewable energy transformation, lauding the country for making its energy sources more sustainable while serving as a leader for the rest of Latin America. But the Times did not offer a comprehensive look at energy and the environment in the country. Chile is one of ten global leaders in renewable energy, due to geography that provides a plethora of natural resources: the Atacama Desert is perfect for the procurement of solar power, the long coastline provides ample winds for wind farms, and active volcanoes make the country poised for geothermal energy collection. Yet, investments in these renewable sources are new, and face problems of transmission and excessive demand. Furthermore, the Times article focused on energy for electricity, but ignored heating. While endowed with a natural advantage for renewable electricity sources, Chile has little to no natural gas reserves to speak of. The country is thus reliant on Argentinian imports for heat energy, making utilities incredibly expensive and environmentally harmful. Therefore, while Chile is well-positioned to develop both electric and geothermal alternatives, these avenues have not been sufficiently explored. Thus, Chile is not yet experiencing as much of an energy transformation as projected and must further develop these technologies.

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Several years ago, it was clear Chile needed to shift its electricity priorities. Though the market was reasonably profitable, prolonged droughts and a major 2010 earthquake affected hydroelectric output and damaged transmission lines, making electricity vulnerable in a country prone to natural disasters. These events called for more diverse and sustainable energy sources, leading the Bachelet administration to invest in solar and wind power.

However, the administration soon ran into problems of transmission and demand. Chile's electricity grid is mostly concentrated in the northern desert SING grid, where most energy is generated, and the central urban SIC grid, where 90 percent of the population resides. Yet, main transmission lines connecting the two grids are just starting to be completed and many sources of renewable energy remain unconnected. This disconnect has led to problems of oversupply in one region and undersupply in another, meaning while there may be a surplus in the overall energy market that leads to low spot prices, most residents cannot gain access to power. While the first connecting line is projected to open by the end of 2017, experts predict Chile will likely need many more. Thus, its infrastructure will likely experience the same problems for the next few years.

Moreover, renewables make up less than 20 percent of energy sources, meaning traditional mining sources supply the majority of elecricity in transition. Increased demand and recent government auctions indicate new renewable projects are in the works. Indeed, 2018 conservative presidential candidate Sebastian Piñera has made a 90 percent renewable pledge by 2050. But these ambitious plans will take time to develop and have yet to impact the sector. Thus, without further transmission and generational development, Chile cannot hope to truly experience an energy transformation.

Then there is the issue of heat energy. With very few natural gas reserves, Chile has long relied on natural gas imports from Argentina to supply heat. Natural gas is then controlled by a government monopoly, ENAP, or Empresa Nacional del Petróleo, that sets high price controls in order to encourage foreign investment. This makes Chilean utility bills among the most expensive in South America. The few natural gas reserves that Chile can claim are limited to tight gas produced in the southern Magallanes region. Tight gas is a form of liquid natural gas (LNG) that is so low in permeability that it requires massive hydraulic fracking, leaving irreversible environmental damage to Chile's breathtaking Patagonia region for only modest output.

A 2016 bill capped the profits utility companies are allowed to make through ENAP, easing the cost borne by residential consumers. Chile also signed an energy swap deal with Argentina in September 2017, trading electricity for natural gas with the promise of lower prices. Yet ultimately, the country is still run by a monopoly beholden to foreign imports. And because of utility costs, most Chileans don't have central heating, but rather rely on space heaters. This makes for cold winter households and distances everyday Chileans from the benefits of various energy investments.

However, Chile could still develop its own heat alternatives. Electric and geothermal sources can serve as alternatives to natural gas heating, both of which Chile has in excess due to its copper industry and volcanoes. As the Times article described, the first geothermal energy plant in South America opened in Cerro Pabellón, northern Chile in August 2017. But the plant is for electricity rather than heating, and as the continent's first, vast developments are required before this resource is available for heat. So while Chile has not yet explored these heat alternatives, it is still valuable in the long-term as renewable sources for heat would decrease costs for residents, mitigate environmental damage, and increase energy independence.

For all of its shortcomings, Chile is still one of the top ten renewable energy leaders in the world, and the market has increased threefold since 2011. However, these investments have still failed to translate to better heat and electricity access for Chilean residents, though it is one of the best-positioned countries for renewables. This does not mean that investments in renewable energy are not worthwhile; they are necessary for Chile to solve increasing demand and vulnerability issues. Yet current renewable investments have a long way to go before its benefits are fully realized. Therefore, Chile must recognize these shortcomings and further expand both its renewable electric and heat energy markets to truly produce the energy transformation it promises. •