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Chilean Energy Resources and the Hidro Aysen Project

[Camila Cossio](#)

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Chilean Energy Minister [Maximo Pacheco](#) visited the United States earlier this month to meet with Obama administration energy officials and members of Houston's energy community. At a breakfast hosted by the University of Texas, he explained that his country has [fewer fossil fuel resources](#) than its Latin American neighbors and that, to compensate, it is pursuing aggressive renewable energy goals.

Specifically, Pacheco said Chile has set a target of producing 20 percent of its energy from non-conventional renewable sources by 2025. His statement echoed the [Energy Agenda](#) that Chilean President Michelle Bachelet released earlier this summer. In discussing the agenda, both Bachelet and Pacheco have emphasized sources such as wind, geothermal, and tidal energy. That they have deliberately sought out renewable sources other than hydropower reflects on the existing importance of hydro in Chile and the unique energy challenges the country faces.

The basic concerns surrounding hydropower are much the same in Chile as elsewhere: damming rivers can have adverse social and environmental impacts. In addition, hydropower compounds concerns about water scarcity since it requires certain flow volumes and leaves less water to accommodate other uses. These tensions were brought into sharp relief recently when the government rejected a permit application for the largest hydro project – and, in fact, the largest energy project of any kind – in the country's history: *HidroAysén*.

Energy Scarcity

Chile is the most energy-poor country in South America. Currently, it imports about [70 percent](#) of its energy, according to the World Bank. Most crude oil and LNG imports come from other Latin American countries; most refined petroleum imports come from the United States. (Pacheco was in Houston, and had gone earlier in the week to D.C., with Bachelet, to meet President Obama and other administration officials, to discuss increased [energy cooperation](#) between the two countries, including exports of LNG from the United States to Chile.)

Depending on the commentator, Chile is either in or at danger of entering an [energy "crisis,"](#) in which the country does not have sufficient generation capacity to power the mining sector and satisfy other demands.

To overcome the deficit of internal energy resources, President Bachelet has prioritized the development of renewables. Her solar energy plan, for one, is the largest ever announced in Latin America, and attempts to set an example "at home" by including placing solar panels on all public buildings. But her push for greater development of renewables has generally focused on sources other than hydropower.

Hydro as a Renewable

What exactly makes a resource "renewable" is a matter of interpretation and, in the United States, certain policies and [advocates consider hydro to be renewable](#) while others do not. [California distinguishes](#) between large hydro projects (those producing 30 megawatts of power or more) and small hydro projects (those producing less). The electricity from small hydro projects counts toward the state's renewable portfolio standard, but electricity from large hydro projects does not.

The Bachelet government has adopted a somewhat similar distinction. It considers projects producing more than 20 megawatts of power to be conventional renewable energy sources. It identifies projects producing fewer megawatts as "[non-conventional renewable energy.](#)" Building upon this distinction, the Bachelet government has called for the construction of more small dams, as part of its policy for addressing water supply needs. These small dams could support micro-hydroelectric plants, which Pacheco has publicly endorsed.

Current Hydro Use in Chile

Hydropower is already an important part of the Chilean electricity mix, accounting for [40 percent](#) of installed capacity in the central power grid. By way of comparison, hydropower produces about [seven percent](#) of electricity in the United States, and only the Pacific Northwest, due to the volume and steepness of the [Columbia River Basin](#), depends on hydropower to the degree that Chile does. ([Idaho, Oregon, and Washington](#) receive more than 70 percent of their power from hydro; in Montana, the share, at 40 percent, is comparable to Chile's.)

As in the United States, Chile has already built dams in many of the most appealing locations. Remaining dam sites carry downsides – such as the distance across which electricity would have been need to be transmitted, from Patagonia to Santiago – in addition to all the standard issues that come with constructing dams and reservoirs.

The HidroAysé Project

As proposed, *HidroAysén* would have consisted of a series of five dams on the Pascua and Baker rivers in the *Aysén* region of southern Chile. The project was proposed by Colbún (a Chilean utility) and Endesa Chile (a Chilean subsidiary principally owned by the Spanish utility Endesa). The project would have been so large that it would have given those two companies control over 80 percent of the Chilean electricity market. It would have generated a total of 2,750 megawatts of electricity, or about 15 to 20 percent of the country's energy needs. The cost of the project was estimated at \$3.2 billion (US), making it the largest energy project in the country's history.

The project would have flooded 5,900 hectares (15,000 acres) of virgin land in Aysén, the least populated region in Chile and home to some of the largest icefields in the world. It also would have required the construction of a 2,000 kilometer (1,240 mile) long transmission line to carry power to the center and north of the country, where Chile's major population centers and mining industries are located, including a submarine portion between Chaitén and Puerto Montt. The energy derived from this project would have mostly benefited the city of Santiago, not the Aysén region.

Rejection of HidroAysén:

The project was first proposed in 2005 and has since been moving through various stages of design and preparation. In June of this year, the Comité de Ministros (Committee of Ministers) unanimously rejected the project, marking an end to *HidroAysén*, at least as currently configured. (The Committee is a government agency that evaluates environmental issues. It is made up of six ministers—each from a different department, including the Ministry of the Environment, the Ministry of Health, Economy, Development & Tourism, Agriculture, and Energy & Mining.) The committee cited three reasons for rejecting the project:

1. the inexistence of a plan for the relocation of 39 families living in the Aysén region;
2. the lack of evaluation on the impact of water resources; and
3. the lack of studies on the effects that the project would have had on land animals.

Opposition to HidroAysén's

Beyond the reasons formally cited by the committee, the project may have been doomed by a combination of concerns regarding indigenous rights and environmental conservation. These concerns were championed by a robust protest movement that took root with the 2011 student demonstrations against former president Sebastian Piñera's administration. The 2011 demonstrations were largely aimed at reforming the country's public education system, but the strength behind the student movement encouraged many other grassroots efforts, including the group "*Patagonia Sin Represas*" or "Patagonia without dams."

Indigenous Rights

There is an ongoing conflict in Chile with the Mapuche community, the largest indigenous group in the country. The Mapuche community previously protested other dam projects, including the Endesa-owned Ralco Hydroelectric Plant. After taking office, Bachelet appointed Francisco Huenchumilla, who is of Mapuche descent, to represent southern Chile. As governor, Huenchumilla has apologized to the Mapuche community on behalf of the government for past atrocities that have been committed against the Mapuches. His appointment and apology were viewed as the beginning of an attempt to ease Mapuche tensions under the Bachelet administration.

HidroAysén's proposed high-voltage towers would have passed through Mapuche territory. Because of this, Mapuche leaders took a strong position against the project and rallied support from their communities. Besides the Mapuches, other indigenous groups would have been affected, including those located between the Los Lagos Region and the city of Valdivia. Further, the transmission lines of the project would have impacted the Chán-Chán indigenous community in Mariquina, the Chihuiumolle community near Cunco, and the areas of Lastarria, Toltén, Cautín to Freire, Lautaro, Victoria, Collipulli, Mulchén and Quilaco.

Environmental Conservation

While indigenous rights likely had a significant impact on the decision to reject the project, the driving force behind the protests against *HidroAysén* belongs to Chile's environmental movement, in which about 35 local and international groups actively worked together to end the project.

One of their main campaigns against the dam's construction concerned the conservation of the Chilean Huemul – an endangered species of deer and symbol of Chilean national pride. There are only about 2,500 huemuls left in the wild. *HidroAysén* would have cut straight through their habitat. The building of the dam would have flooded 15,000 acres of land in the Patagonia – altering the largely untouched surrounding wetland ecosystems. Furthermore, the project would have flooded a portion of Laguna San Rafael National Park—potentially violating both Chilean Law and an international treaty that protects the flora and fauna of the park.



Chilean Huemul

In 2008, *HidroAysén* stakeholders submitted a 10,000-page environmental impact assessment that was largely criticized. The main criticisms of the assessment included the omission of the baseline transmission line, an evaluation of the flooding zones, and a misidentification of the baseline.

HidroAysén and Bachelet's Energy Agenda

HidroAysén was such a large project that it could have single-handedly met the 20 percent target goal set out in President Bachelet's Energy Agenda. The Bachelet administration has maintained that the rejection of *HidroAysén* was a rejection of that particular project proposal and not of hydropower more generally.

Still, the president has tried to distance herself from projects like *HidroAysén* and instead emphasized Chile's potential for wind, geothermal, and tidal energy, which together account for about 6 percent of the country's present generation capacity. Whether *HidroAysén* resurfaces in a new repackaged and more politically palatable proposal could offer the true test of her commitment to non-conventional renewable energy sources.

Former Energy Center R.A. Bianca Scott '15 contributed research assistance to this post.

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