



In Search of a Rainmaker

Energy Policy in Chile

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In Chile no single element has had a greater impact on productivity than energy, and particularly energy costs. Electricity costs have doubled in the last seven years, according to the Chilean Energy Ministry. At the same time, a persistent drought has tested the country's hydroelectric capacity — hydropower accounts for 32 percent of the electric matrix— shifting generation toward more diesel and coal. Add to this the fact that Chile imports around 97 percent of its fossil fuels, and some observers fear the country is headed for a crisis.

Against this backdrop, expectations were high when Chilean President Michelle Bachelet announced her administration's *Energy Agenda* in mid-May. The plan gives renewed focus to the role of the state in Chile's energy sector, and emphasizes the importance of natural gas in ensuring energy security. It has also revived interest in domestic oil and gas production, and expanded opportunities for renewable energy.

For participants in the Institute of the Americas' Chile Energy Roundtable, the need for Chile to continue its efforts to develop a diversified and sustainable energy system was paramount. Yet agreeing on an approach that reduces energy prices while addressing the obstacles facing the development of the nation's most critical energy projects proved a more divisive task.

Despite being geographically distant, the US energy revolution is close at hand for Chile's energy policy dialogue. In particular, policy makers have focused on potential access to the United States as a new and hopefully cheaper source of natural gas. Following Energy Minister Máximo Pacheco's visit to the United States in July, the government announced its first agreement to import LNG from the United States starting in 2015.

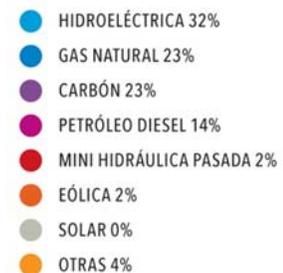
But perhaps what Chile really needs, noted one participant, is a "rainmaker." Not only a break in the drought hammering the country but also a dramatic increase in energy investment to make progress toward achieving Chile's energy goals. In particular the challenge of reducing energy costs, which is at the core of President Bachelet's energy agenda.

The role of the state in Chile's energy agenda

Chile currently imports 60 percent of its primary energy needs, making it vulnerable to the instability of international markets and volatility of energy prices. The political transition and impact of climate change have further prompted the government to think strategically about its energy plan. The result, is a set of actions designed to create an energy matrix that is

"reliable, sustainable, inclusive, and at a reasonable price, with a diverse and balanced electric matrix that guarantees greater sovereignty in meeting its energy needs"

Chile Electric Matrix 2013
(17.586 MW)



Source: Ministry of Energy, Chile

But it is the role of the state in Chile's new energy market that sparked intense debate among participants.

The Bachelet administration has made clear that national oil company ENAP will play an important role across the energy sector, from upstream development, to attracting foreign investment, to shifting the country's electric matrix away from diesel and toward natural gas. The company is also advocating for the 'massification' of natural gas as a way to provide energy to individuals and communities not connected to the national grids.

Bachelet's proposed \$400 million capitalization of ENAP over the four year term aims to put the company in a far better financial position to act on this mission.

Another important component of ENAP's revised assignment is to establish the company as environmentally conscious and engaged with local communities. This is part of a broader consensus – that Chile's energy sector needs a paradigm shift in the way both government and industry develop projects and engage communities across the diverse regions of the country.

The natural gas alternative

Natural gas has become a cornerstone of the Bachelet Government's energy agenda as a means to address a growing deficit in the country's power generation capacity as well as reduce vulnerability to global oil prices. Recently appointed ENAP CEO, Marcelo Tokman underscored the role for natural gas as part of the energy agenda and the possibility for expanded import infrastructure as well as a role for the national oil company to leverage natural gas for power generation. More distant, but part of the mix he suggested, are efforts to boost exploration of unconventional natural gas resources in southern Chile.

There is no lack of optimism across the Chilean government and industry for tapping into the US energy boom and LNG exports. Noting the benefit of its free trade agreement with the United States, Chilean officials including the minister praised the opportunities for LNG, particularly as new export projects come online in the United States Gulf of Mexico. US energy firm Cheniere estimates that up to 70 million tons of new LNG could be coming out of the Gulf of Mexico in the next 8 years.

The deal between ENAP and British Gas to import LNG from the Cheniere terminal on the Gulf Coast is the first step in that direction.

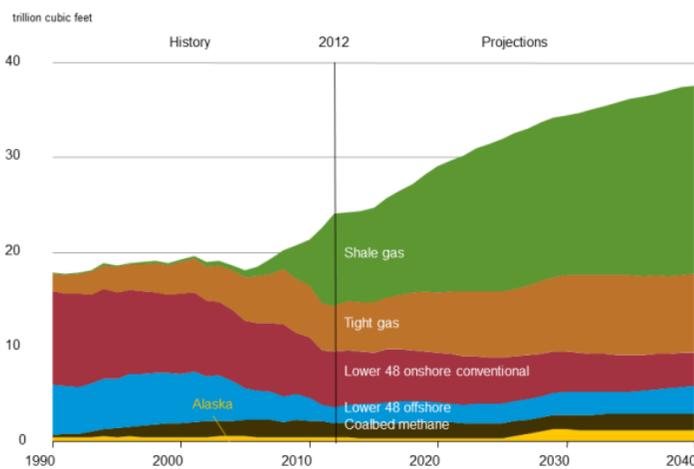
However, panelists emphasized that in order to take advantage of increased supplies and cheaper prices, Chile must be prepared to negotiate 20-year contracts for significant quantities of natural gas. Moreover, Chile must ensure that contracts

not only guarantee security of supply but also flexibility.

Weather patterns such as *el niño* and *la niña* are impacting the hydroelectric generation capacity of countries across Latin America, and Chile is no exception. Allowances for fluctuating demand should be considered as part of any agreement.

There are some possible obstacles for Chile, including a tariff imposed on LNG imports from countries with whom Chile has not signed a Free Trade Agreement; a restriction not imposed on petroleum imports. Panelists worried such restrictions could reduce Chile's competitive edge, particularly when considering potential suppliers outside the United States, such as Trinidad & Tobago, a regional natural gas heavyweight that does not have a free trade agreement with Chile.

Figure MT-44. U.S. natural gas production by source in the Reference case, 1990-2040



Source: US Energy Information Administration



Untapped shale prospects

While the potential for unconventional exploration and production has increasingly titillated investors and the government in Chile, significant fruits of shale development appear a long way off. The US Energy Information Administration estimates that the portion of the Magallanes basin in Chile holds 49 trillion cubic feet of shale gas and 2.4 billion barrels of recoverable shale oil reserves.

ENAP is leading development efforts. The company began producing tight gas in 2013 and plans to invest \$130m in Magallanes exploration and production this year. More recently, the Arenal Block reported 450,000 m³/d of production.

One enduring barrier to unconventional resource development is distance. The Magallanes region, located in the southern reaches of the country, may simply be too far from large population centers to be a cost-effective supplier, even with improved LNG infrastructure.

Minister Pacheco visited a shale play while on his recent US visit, citing the United States a model to follow as Chile seeks to take advantage of its unconventional resource potential. Many observers, however, see any large scale output occurring after the current administration.

In establishing natural gas as the foundation of Chile's electric matrix, this should also create more space for deployment of renewable resources, another pillar of the energy agenda.

Historically, hydroelectricity has been a key piece of any sustainable energy system, with panelists describing water as Chile's "fuel." Yet with the country's controversial hydroelectric project, Hidroaysén, off the table, the Chilean government is instead focusing on smaller-scale hydropower and so-called nonconventional renewable energy sources (NCREs).

NCREs have received increasingly vocal support in the country and as part of the new energy agenda, the Bachelet administration has retained the previous government's commitment to a goal of 20 percent of electric generation by NCREs by 2020. In practice, this means promoting investment in solar, wind, and geothermal energy.

Community engagement and lessons learned

A more proactive government role and clearer rules and regulations vis-à-vis zoning figure prominently in the energy agenda and were reiterated by industry participants.

Historically, the Chilean Ministry of Energy has not participated in the development of zoning laws and regulations, nor conversely, has energy been a consideration in regional planning efforts in Chile. The central government aims to change this and is already working to incorporate energy into the planning process in three regions. These local and regional planning initiatives feed into the broader goal of the energy agenda, for the central government to take an active role in energy planning.

According to one panelist, however, the Bachelet administration still has a long path ahead. While there is some consensus on zoning in terms of areas in which energy projects should not be developed, such as protected areas and communities with high environmental vulnerability, further clarity is needed to help anticipate and resolve disputes with local communities.

Chile can also look abroad for lessons on how to manage zoning regulations and community engagement. Switzerland's efforts to promote citizen participation in energy policy and development at local and regional level are instructive. Chile can also review Germany's experience in facilitating community participation as part of developing regulation for an expansion of thermoelectric generation projects in the country.

Infrastructure and integration

Panelists concurred on the importance of joining Chile's anachronistically unconnected northern and central electric systems (SIC and SING) but found little optimism for completion of the effort during Ms. Bachelet's term. Some pointed to early 2020s as a realistic timeline.

Instead panelists' recommendations went beyond the interconnection of the two grids. Given the disparate residential and industrial centers across Chile, they advocated for better natural gas transport infrastructure by various means, including both physical and virtual pipeline. The latter includes trucks that can transport natural gas over short distances, while shipping natural gas as LNG is far more cost effective at linking Chile's distant population centers than constructing vast pipeline networks or transporting overland.

In a further boost for natural gas, President Bachelet's energy agenda includes the construction of a third LNG terminal in the central-southern region of the country. The new terminal would complement existing facilities at Mejillones in the north and Quintero in the center of the country. The Quintero terminal will also be expanded under the plan.

While natural gas is critical to the country's electric sector, its many other uses should not be ignored. Transport is just one sector that is incorporating natural gas as a fuel. In the United States, for example, LNG is fueling mining trucks and other large-scale equipment. Natural gas-powered fleets of delivery vehicles, buses, and taxis are also emerging across the region.

Finally, not to be discounted are the regional interconnection efforts being embraced in Chile. Of these, the Pacific Alliance framework has received the most attention but there are other opportunities to tap into regional energy markets and electric interconnection projects stretching from Colombia through Ecuador and Peru to Chile.

The government is set to release a strategic plan outlining Chile's participation in regional interconnection initiatives. Several priority areas have been identified, including electric interconnection with Peru, electric and natural gas swaps with Argentina, energy purchasing agreements with Ecuador, and defining the regulatory framework governing the members of the Andean Interconnected System (SINEA).

Conclusion

Just over one hundred days into the new government's term, Chile's energy sector is beginning to gain a more positive outlook. Bolstered by the potential for imports of natural gas from the United States, a strengthened national oil company, and regional integration efforts, President Bachelet and her government have set forth an ambitious energy agenda that should help Chile avoid the energy crisis many observers feared.

Instead, the challenge for Bachelet will be to increase diversification and energy security, while still lowering costs.

The "rainmaker" effect can catalyze greater investment across the value chain, from exploration and production, to transport infrastructure, to improving efficiency in the electric sector and promoting renewable energy development.

But it will require the continued dedication and purposefulness that the government has displayed to date in preparing and launching its energy agenda. Indeed, drafting and setting forth the plan was an important and critical step for the country, but now the hard work of implementation begins.

Nowhere will this be more critical than in terms of reducing elevated tensions in many parts of the country with regards to the energy industry. That the government highlighted the issue of communities and zoning in the energy agenda is significant. But more vital than just identifying the problem is conceiving and executing a strategy in the early part of the new term to be able to foster investment and support the country's upward economic trajectory.

Whether the country is able to accomplish all it has set out to do will no doubt be at the forefront of energy debate over the next four years.

Fortunately, Energy Minister Maximo Pacheco, ENAP CEO Marcelo Tokman and the wide range of industry players in Chile have demonstrated a willingness to learn, listen to new ideas and a seriousness and capability that they are prepared to roll up their sleeves and get to work to insure that the energy sector supports Chile's economic productivity and overall economic development goals.

This report is based on discussions during the Chile Energy Roundtable, held on June 24 in Santiago, Chile.

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