

Energy: It's Time to "See the Light"

The electric power scenario is getting critical, which is consistent with the execution difficulties that generation projects are facing today. The urgency to concentrate efforts in pushing the sector's investment is obvious, as well as creating the necessary conditions to develop efficient generation. The time has come for the political world to undertake actions to prevent the supply shortage from becoming an obstacle for the country's economic and social development.

Chile has achieved significant developments in economic matters, which have entailed a remarkable social progress. In slightly over two decades (1990-2012) the GDP has tripled, which has allowed reducing poverty levels from 38.6% to 14.4% and reach high coverage standards and access to basic services and goodsⁱ (see Chart 1).

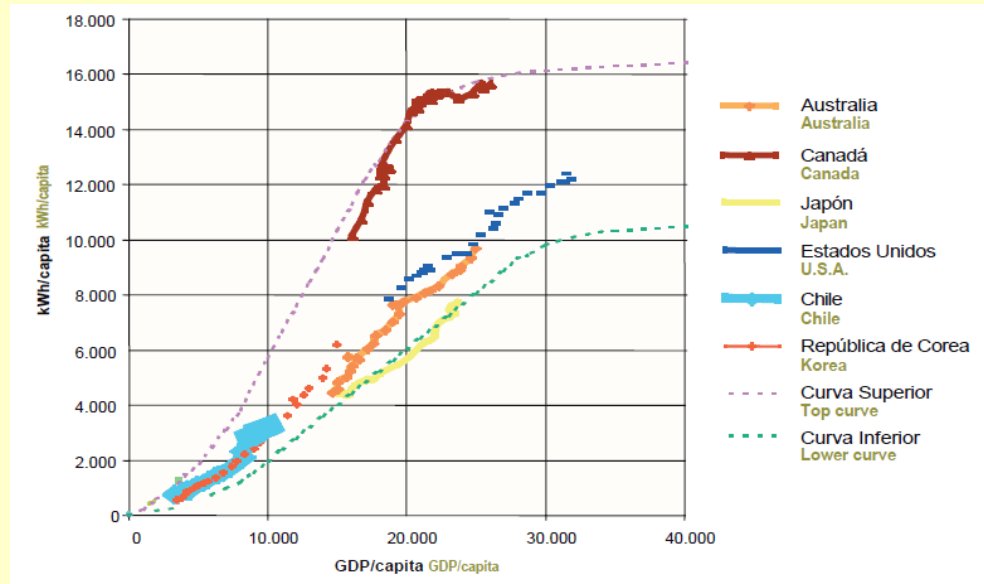
This dynamism in the activity and the increase of wellbeing could not have been possible without electric power. All productive activities require power supply, either of industrial, mining or commercial nature. Likewise, households are important energy consumers, a demand that grows inasmuch as their incomes increase.ⁱⁱ

The relationship between economic growth and electricity consumption is widely documented both by the Chilean reality and the international experience. As a matter of fact, while countries have achieved higher development levels (measured by their income per capita), their electric power demand has also grown in a sustained manner.

Chile has followed the same process, but it still shows low energy consumption levels. According to figures published by the International Energy Agency (IEA), by 2010 the country's electric power consumption reached 3.3 Megawatt-hour (MWh) per capita, quite below the 13.4 MWh of the USA and the average 8.3 MWh of the OECD countries. This fact allows foretelling that Chile's power demand will continue growing in a significant way in the following years, due to the expected growth of the economic activity and the greater use intensity of electricity at household's level.

Chart 1

RELATIONSHIP GDP-ELECTRIC POWER



Source: APEC, L. Vargas, Universidad de Chile (2009) presented by Daniel Fernández, at Club Monetario Finis Terrae. July 12th, 2013.

According to the IEA, in Chile the energy demand will grow at a rate of 5.9% annual during the next years. Assuming a decreasing rate over time, it is possible to anticipate that supply requirements will increase by approximately 100,000 Gigawatt-hour (GWh) by 2030 (today it is close to 65,000 GWh). The challenge is to meet these greater energy demands, because we cannot take the risk of supply shortage becoming a bottleneck for the country's social and economic development.

In the past, this has been possible thanks to the system's adjustment capacity, even under very adverse conditions (Argentinean gas supply cut off, droughts, fuel price increases, etc.). The current situation does not seem very auspicious, not because project developers are not interested, but because the minimum necessary conditions are not in place for making investments in the sector.

The Problem

The last report of the *Corporación de Bienes de Capital* (CBC – Capital Assets Corporation) confirmed a new drop in the investments' estimates of the energy sector for the five-year timespan 2013-2017 in relation to what was registered at the end of 2012. A dozen of electric projects have been

brought to a standstill or postponed throughout time, whose investments are over US\$25 billions. This is a consequence of the investment scenario's impairments – characterized by strong objections from the citizens, increasing judicialization and hindering of works -, which has made the materialization of projects in the sector increasingly complex.

In this manner, projects have not only been rejected and interrupted, but there is also evidence of a concerning absence of new competitive projects. In fact, although there is an important project portfolio with approved environmental permits, a good deal is under no conditions of being executed, either because their own characteristics make them less competitive or because the existing legal uncertainty and the increasing judicialization impair their materialization. Thus, from the 7,000 MW capacity needed to be installed from here to 2020, only 1,000 MW are being constructed, and during this year no relevant projects have entered the Environmental Assessment System (SEA, in Spanish).

The existing difficulties put power supply at reasonable prices at risk as of the next 3 to 4 years, which foretells an imminent energy shortage. This was confirmed by a recent survey entrusted by the Chilean Confederation of Production and Trade (CPC, in Spanish) to a transversal panel of experts, who indicate that the plants currently in service and in advanced construction stage will be able to supply the electric power demand only until 2016, which opens up a concerning future in issues related to supply and prices.ⁱⁱⁱ

The above is already reflected in higher electric power prices at the spot market and in the contracts of free clients, thus affecting the mining, industrial and commercial activities. Furthermore, the bills of residential customers will probably start to increase.

It is urgent to carry forward the generation (and transmission) projects to supply the rising demand and prevent a stronger increase of the electric power tariffs. However, it is increasingly harder and costly to implement these projects, due to the strong environmental and citizen opposition and growing judicialization of the initiatives.

What has been done?

In a recent interview to President Sebastián Piñera, he was asked about the government measures to solve the energy crisis.^{iv} Besides mentioning the National Energy Strategy, which the authority published at the beginning of 2012 and set the central elements of the energy policy, the President named four bills that are currently being dealt with at the Congress, that is: the 20/25 project^v, electric highway, electric concessions and interconnection of the country's large electric systems (SIC-SING). The question now is whether these bills are enough to put into practice the generation projects that Chile requires. The answer is clearly no.

The electric concession bill is important since it would allow streamlining the procedures for the obtainment of electric concessions, thereby respecting the rights of the affected owners. Nevertheless, during its proceeding, a series of discrepancies have arisen, which should be solved in a mixed commission, and whose result is still uncertain. Moreover, it has been agreed that this bill's proceeding shall simultaneously conclude with the 20/25 bill, an initiative which could have quite adverse effects on the electric system in terms of costs and security.^{vi}

Meanwhile, the electric highway bill seeks to simplify the construction and expansion works of the transmission system, particularly of the renewable energy projects located farther away. We are talking about a set of rules that allow integrating new parameters to the definition of the transmission infrastructure routes, which should better address the growing citizen concern and offer bigger certainties to project developers. This bill complements the electric concessions' bill, but its proceeding seems even more complex.^{vii}

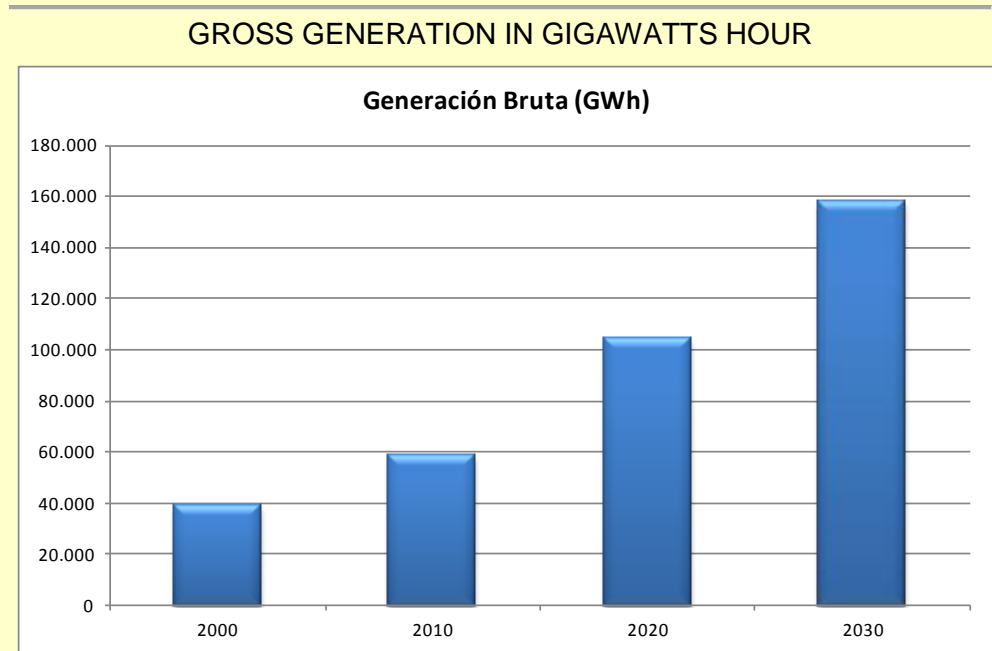
Finally, the recently introduced interconnection bill allows the State to foster interconnection, since today it is made through private initiatives only. Thereby, competition and backup capacity should increase, development of renewable resources should improve, and regional energy integration should be enabled. However, criticism has come up concerning the estimated benefits and the investment profitability.

In brief, the pending bills do not solve the basic problem, since they are insufficient to solve the transmission issue if there are no sources generating that energy. In what really matters – the generation capacity – we are still trapped in how to force the incorporation of Non-Conventional Renewable Energies (NCRE) to reach 20% of the grid, but nobody copes with how to solve the remaining 80%. Therefore, it is urgent to design an initiative in this perspective, which is still a great pending challenge.

Possible Developments

What should be done in order to generate the extra capacity of thousands of Megawatts (besides extending the transmission lines) that the country requires to meet its energy needs? While in the decade 2000-2010 the system increased its total generation by almost 20,000 GWh, the challenge for this decade (2010-2020) is twofold and for the timespan 2020-2030, threefold.

Chart 2



Source: Prepared by L&D.

It is clear that under the present conditions it will not be an easy task and success will depend on the decisions that are made. In fact, the measures taken today will define whether we will rely or not on generation at reasonable prices during the next decade, which deserves a joint effort of the Executive, Parliament members, the Judiciary and the citizens. Therefore, we have to make progress in some of the proposals that have been discussed, but which have not yet been executed:

1. It is necessary to promptly approve the electric concession and electric highway bills, inasmuch as they would allow reducing the time to perform the works. The issues that are being currently discussed in the mixed commission in order to approve the concession bill are highly relevant, since they could become an insurmountable obstacle. It is a matter of concern, for example, the potential incorporation of an indigenous consultation in bodies different from the form and opportunity established by the law. Likewise, the discussion envisages the introduction of rules on protected wildlands, which would not only modify the general environmental regulation, but in some cases it could also prevent the development of the necessary infrastructure for electric transmission.
2. The authority must work to streamline the sector permits and standardize the environmental assessment methodology that allows accelerating the processes and set objective criteria for the approval

or refusal of the initiatives. At the same time, it should avoid the term delays in the Ministerial Committee on Sustainability, as it is to date.

3. We should take the opportunity to attract investments on base load generation capacity through open tenders for supply of regulated clients.^{viii} Particularly, the survey instructed by the CPC indicates that with an adequate design, tenders could open up the possibility of supplying part of the demand with Liquefied Natural Gas (LNG), through long-term contracts, which would entail a significant improvement in the prices estimated for the coming years.^{ix} Therefore, the report recommends that contracts with distributors are extended at least until 2026; that bidders have the option of setting price offers at marginal cost for the period 2013-2016 subject to an absolute ceiling and return to an indexed fixed price in the period 2017-2026; to divide the overall block to be tendered in smaller and addable subblocks to allow the participation of smaller stakeholders; and give a reasonable term for stakeholders to negotiate their long-term gas supply contracts, or other fuels, before presenting their offers. This could create the necessary conditions to mitigate, at least in part, the supply problems of the SIC during the period 2013-2020.
4. More information should be given to the society, and trust in the institutions must be generated. Citizens feel empowered and have the means as well as the interest in making themselves heard. However, there is misinformation and ignorance in relation to the options available for the country to meet its future energy needs, which deserves an effort to promote dissemination and citizen awareness. In the same line, citizen participation should be encouraged and delimited, giving people the possibility of expressing their positions through the adequate bodies, respecting the institutional framework and the procedures in force.
5. A greater regulatory stability is required to improve the investment climate. Currently, the NCRE Law is being amended (passed in 2010) and restrictions in respect of carbon emissions are evaluated, despite a recent publication of the emission standard for the thermoelectric sector (of 2011). Although it is always possible to make improvements, it does not seem convenient to continuously review the laws and regulations in force, whose overall effect has not been yet dimensioned.
6. Ways should be found to respect the technical deference, that is, that each body acts within its competence sphere, thus giving more legal certainty to investments. In fact, the behavior of the courts of justice, particularly the Supreme Court, has been criticized for interfering with the duties of specialized technical bodies.

7. It is necessary to improve zoning issues that allow locating power plants in suitable areas. The authority could contribute hereto by making a data survey which allows better evaluating the convenience of certain localizations and putting fiscal lands that are adequate for developing energy projects at the disposal of the private sector.
8. Making good use of available water resources, which amount to more than 6,000 MW in the southern region and whose exploitation would enable a greater participation of clean and renewable sources in our electricity grid. In this perspective, pending projects which would tap the southern region's hydro resources should be promoted inasmuch as they comply with the environmental requirements.
9. Assessing the implementation of local contributions that allow communities to participate of the benefits of large projects. This system should be based on the profits generated by investment projects, but it should not become an additional levy because it would have an impact on competitiveness. Therefore, the proposal should aim at contributions being able to be deducted from taxes. In other words, it would be a transfer from the central government to local governments. The financial resources would directly benefit the affected communities, ideally ranked in terms of a project portfolio agreed with the community, the local authority and the project developers. In this manner, a transparent and fair process would be created in respect of revenue distribution, thus preventing that only a small but better organized group receives most of the benefits.
10. Achieving a legislative agreement to introduce improvements that are beyond the administrative sphere, such as: (i) coastal range; (ii) implementation of the agreement 169; (iii) proceeding and verdict of Remedies of Protection.^x

Conclusions

There is no doubt that the electric power scenario is getting critical, which is consistent with the execution difficulties that generation projects are facing today. The urgency to concentrate efforts in pushing the sector's investment is obvious, as well as creating the necessary conditions to develop efficient generation.

Several aspects are put forth that need further developments. The time has come for the political world to "see the light" and undertake actions to prevent the supply shortage from becoming an obstacle for the country's economic and social development.

Regardless of the energy sector, we should think in the future about a new way of assessing the projects that are significant for the progress of Chile, since the productive activity tends to be perceived and analyzed as a source of mere negative externalities, an image that is unfair.

The productive activity entails important benefits for the society, such as the creation of value and employment, the construction of infrastructure, electric power generation, and many other goods and services. These positive factors should be weighted in order to contrast them with possible damages that may derive from productive processes, usually resulting in a positive balance.

In brief...

- The last report of the *Corporación de Bienes de Capital* (CBC – Capital Assets Corporation) confirmed a new drop in the investments' estimates of the energy sector for the five-year timespan 2013-2017. A dozen initiatives, whose investment is over US\$25 billions, have been brought to a standstill or postponed.
- The challenge is to meet the energy demands. We cannot take the risk of supply shortage becoming a bottleneck for the country's development. However, the electric power scenario is getting critical.
- Thus, it is urgent to undertake actions to foster investments on energy projects that will sustain progress. There are several aspects where it is possible to make headway; therefore, the government, the Congress, the Judiciary and the citizenship should join forces.

ⁱ CASEN Survey. In 2011, 98.7% of the households had drinking water and 99.6% had electricity. In 20 years (1990-2011), households with refrigerator increased from 52% to 92.4% and average schooling rose from 9 to 10.5 years.

ⁱⁱ As income increases, the population has access to a larger number of electric home appliances, air conditioning systems, etc., which increase their electric power consumption.

ⁱⁱⁱ The survey, carried out by S. Bernstein, G. Bitrán, A. Jadresic and M. Tokman indicates that marginal costs would grow from current US\$90 per MWh (if 2013 were a

normal hydrological year) to US\$130 per MWh in 2018 (+44%). If the projects estimated in the base scenario are delayed one year, marginal costs would reach US\$156 per MWh in 2018 and US\$250 MWh in a dry year.

^{iv} Newspaper El Mercurio, July 28th, 2013.

^v Parliament's legislative motion which seeks to promote a greater inclusion of non-conventional renewable energies (NCRE) in the electricity grid; the original goal is to reach 20% by 2020. In the second legislative proceeding, the Executive presented an alternative suggestion that was approved and which postponed the same goal for 2025.

^{vi} For further details on the bill for electric concessions' and NCRE (20/25), see Libertad & Desarrollo in Public Issues N° 1,115, June 2013.

^{vii} For further details on the electric highway bill, see Libertad & Desarrollo in Public Issues N° 1,078, September 2013.

^{viii} For further details on supply tenders for distribution see Libertad & Desarrollo in Public Issues N° 1,114, June 2013. Regulated clients are end-users whose connected power is less or equal to 2,000 Kilowatts, who are subject to a regulated tariff.

^{ix} Provided that all or some of the existing combined cycle power plants (Nehuenco I & II and Nueva Renca) participate in this market through long-term contracts, based also on long-term LNG purchases. This, together with the transformation to combined cycle of the existing open cycle power plants (Taltal and Candelaria), would allow mobilizing around 1,000 MW in base plants operating with diesel oil.

^x In Chile, appeal for reestablishment of a preexisting right or against the disturbance of a *statu quo ante* (T.N).