

CADE Report: Towards a Long-term Energy Policy

The report delivered by the Advisory Commission for Electrical Development is a great contribution to the long debate on the future of the energy matrix in Chile. The Commission gathered a multi-disciplinary panel of experts with different political sensibilities, which gives special value to the fact of finding consensus in a series of subjects that are highly relevant for the country.

The Advisory Commission for Electrical Development (CADE, in Spanish) delivered this week the report requested by the Government on last May. Its purpose was to analyze the current situation of the electrical market and propose recommendations for an adequate energy policy, in view of the increasing need for generating economic, clean and safe energy.

This work, which obtained a transversal consensus among the 16 members of CADE – a multi-disciplinary panel of experts with different political sensibilities -, should be useful to start defining the following steps to consolidate a mid- and long-term

electricity policy, which guarantees energy development according to the country's needs, thereby safeguarding the environment and offering greater social acceptability.

The following paragraphs include some of the main conclusions and recommendations derived from this report, dealing with a wide range of subjects which will be a determining factor for improving our energy policy.

General Aspects

The CADE report sets forth that the challenges of the electricity system are multiple. In particular, it is required to fulfill the electricity consumption needs of the country with quality, efficiency and low

costs, forestalling the existence of effective competition with proper regulation, planning and supervision. Additionally, the need for an adequate diversification and ensuring environmental sustainability and citizen participation is to be guaranteed.

In the first place, in order to put the recommendations into effect, the Commission made an exhaustive analysis of the current energy policy and the main challenges for the period 2012-2030. It is well known that today's policy aims at supplying the demand in efficiency, security and sustainability conditions, based on the private activity and under a regulating role of the State. In this perspective, the report's first conclusion that is worth highlighting is that the current energy policy has been successful, although it contains errors in certain matters which should be corrected.

In fact, the Commission confirms that the Chilean electricity model has allowed fulfilling the increasing energy needs with quality and efficiencyⁱ, but it also has been able to properly overcome crisis situations. However, this does not mean that the system does not require any improvements, which allow correcting weaknesses and adjusting the model, so as to keep fulfilling the country's energy needs, within a context where environment opposition, delays in the permits obtainment and questioning to the regulatory framework have increased in the last few years. Along these lines, the Commission somehow picks up citizen demands to foster clean and sustainable generation and allow a greater citizen participation in the decision taking process.

On the other hand, the Commission explores a range of alternative scenarios to shape the future energy matrix and determine what will be the effects on society when applying different instruments to foster a specific matrix. Among its main conclusions, it is worth mentioning that the hydraulic generation technology will be highly relevant in the domestic energy matrix, as a consequence of both its economic and environmental benefits.ⁱⁱ Meanwhile, Non-Conventional Renewable Energies (NCRE) will probably show a greater penetration than that established today by the law, provided that adequate measures are taken thereto.

Recommendations for Competing in the Electricity Market

The CADE report states that the market has efficiently operated and the high prices observed in recent years correspond to specific conditions that are not associated to anticompetitive conducts. However, it estimates that in the long-run it is necessary to demolish

what could become an important barrier preventing the access of new actors. Therefore, the report sets forth a series of recommendations in the electricity generation, transmission and distribution areas.

Concerning the generation issues, the report indicates the need to define a territorial ordering giving some certainty degrees for the installment of thermoelectric plants; to complete the regulation development of short laws I and II and standardize the environmental impact surveys and evaluations; to set information and transparency goals in the market; to restructure the economic charge dispatch center (CDEC, in Spanish) to guarantee its independence from the market actors; to apply a tax for non-consuming water rights on behalf of the communes in the affected basin; to set explicit conditions enabling the access of third parties to the LNG terminals; and to establish a guarantee scheme to avoid interruptions in the spot market payment chain.

With regard to the transmission, the report indicates that the current electricity law allows the transmission systems to have the characteristics of a public electric highway. Nevertheless, it is necessary to shorten the execution terms for the transmission projects, justifying a higher intervention from the State. The report gives certain recommendations including: to improve reliability of the transmission system through control mechanisms; to expedite the transmission projects' proceedings (concessions and easement); to create State-leased easement lanes; to establish permanent transmission planning; to make a strong trunk expansion; and to develop corridors affected with a public interest by means of anticipated investment on transmission lines with clearances. The Commission also recommends studying the social costs and benefits of the SIC-SING interconnection, and of the international interconnections (but avoiding dependence in this case). Finally, the report suggests the regulator's participation in the works' leasing process; to review the common influence area of the trunk system and the injection/withdrawal toll proportion; and to modify the discount rate used in the valorisation of existing transmission facilities and planning of the system's expansion.

In the distribution market, the report makes recommendations to increase competition in the long-term contracts with distributing companies. Proposals are made concerning adjustments to the rate fixing processes, such as making two pricing studies whose divergences are settled by the panel of experts, and the modification

of the discount rate. It also suggests creating the multicarrier function and gradually reducing the 500kW limit that defines non-regulated customers.

Electricity Development, Environment and Society

Furthermore, the report makes recommendations so that the electricity market may face the environmental sustainability challenge and the lack of citizen trust in the environmental policies applied to the sector. Currently, the projects are mainly tested through the environmental impact assessment system, which establishes the potential effects on the ecosystems with high environmental value; meanwhile, the protected areas' definition and the vulnerable species' protection should guarantee the conservation of the environmental patrimony and natural resources. However, the Commission has considered that these instruments are not enough to guarantee the sustainability. In this perspective, it proposes the following for the conservation of the environmental patrimony and natural resources: to improve knowledge on basins and ecosystems; to work on localization policies for thermal power plants; to define protection areas and restriction levels for economic activities carried out inside these areas; and to define criteria to determine minimum ecological flows, among others.

Likewise, in order to achieve greater citizen participation, to make progress towards reaching agreements and adequately handling the conflicts, the report promotes the generation of information to develop informed perceptions and opinions and stimulate the participation forums, both at the regional and national level. In relation to the latter, we can highlight the proposal for the implementation, every four years, of a participative discussion system regarding long-term energy policies and critical development aspects, considering wide citizen participation. This should entail a long-term policy proposal which the authority should present later at the Congress.

With regard to specific projects, the report recommends improving the information and participation forums; to envisage methodologies and participative spaces for each stage of the Environmental Impact Assessment; and to extend the participation mechanisms. It also emphasizes the need for greater information transparency, thus proposing the creation of a permanent system of energy-environmental public information and private information management on investment projects.

Finally, the Commission stresses the role of education in energy-environmental matters, with the purpose of accessing the contents to the citizens.

New Subjects Concerning the Energy Strategy

The report also addresses other subjects which have gained increasing relevance in the last few years, such as energy efficiency, use of hydroelectricity in the south of the country, NCRE, nuclear energy and technological innovation.

In Energy Efficiency matters (EE), the Commission considers that it is relevant to have a solid strategy, acknowledged as an environmentally benign energy source. In this context, it suggests that it would be convenient to rely on State support through different subsidy mechanisms that promote EE, setting specific EE goals and a budget in harmony with these goals.

As to hydroelectricity in the south, the Commission stresses the importance of this potential energy source for the future electricity matrix. In this perspective, the report indicates that the country must consider the development of the hydroelectric resources available in the southern part of the countryⁱⁱⁱ, and establishes some relevant measures to make progress in this matter, with due safeguard of the environment and its impact on society. Therefore, it proposes to carry out surveys on the use of regional energy resources and its environmental impact, considering localization options for the electric transmission and road infrastructure required by the entire hydroelectric potential in the long-run. However, it makes clear that the recommendations to incorporate environmental management and social participation issues to the current regulatory framework must not stop nor delay the projects already approved or being qualified by current rules.

In relation to NCRE, the Commission promotes a series of measures that allow eliminating the access barriers to competitive NCRE, emphasizing that it is not convenient to force the introduction of non-competitive NCRE projects. In NCRE financing matters, the report suggests the use of financial instruments and state warranties that facilitate the access to credits and the feasibility of the competitive projects' portfolio, or otherwise, to establish a stabilized (and neutral) energy spot price scheme for the sale of NCRE generators which guarantee an average marginal energy cost every year. Regarding geothermal energy, it also promotes a contingent subsidy

contributing to finance the surveying costs which end up unsuccessful.

Other proposals fostering competitive NCRE suggest reducing the barriers for the market of end users' contracts for small and medium projects; incentivising the associability of NCRE projects through subsidies of the *Corporación de Fomento de la Producción* (CORFO, Economic Development Agency) in order to dimension the transmission lines with clearances; to apply a regulation for the distributed generation; to continue the development of information systems concerning the country's energy resources; to extend the R&D (research and development) support and allocate delimited subsidies for demonstrative pilot projects through competitive funds. The proposal of raising the goal stipulated in Law Nr 20,257 on NCRE penetration in the energy matrix from the current 10% level to 15% for 2024 deserves special attention.

In relation to nuclear energy, the Commission favors the fact of advancing in all issues allowing Chile to opportunely decide if it is convenient or not to start a nuclear power program, considering that it is a strategic insurance which allows guaranteeing the long-run sustainable energy supply. Therefore, it recommends strengthening the Chilean Commission of Nuclear Energy; creating a regulating organism; establishing a coordination entity; carrying out geological surveys for nuclear plants localization; updating the information on technological developments in nuclear reactors; informing society on nuclear energy; and training people and professionals.

Finally, with regard to technological innovation, it proposes to create a commission to determine if there are short-term NCRE technological innovation niches that could be developed in Chile.

Comments and Conclusions

The report delivered by CADE is a great contribution to the long debate on the future of the energy matrix in Chile. The Commission gathered a multi-disciplinary panel of experts with different political sensibilities, which gives a special value to the fact of finding consensus in a series of subjects that are highly relevant for the country.

Among the consensus, we can highlight the support given to the current electricity model that has allowed fulfilling the country's energy needs, although there is still space for improvements (and the Commission's recommendations point in that direction).

The report makes specific recommendations enabling to guarantee a competition environment in the generation, transmission and distribution of electricity for the next decades, and gives guidelines allowing to demolish the access barriers for new actors (among them, to speed up proceedings and increase the participation possibilities of competitive NCRE), increase citizen participation and guarantee a better protection of the environment.

On the other hand, the report expresses some relevant features such as the need to properly develop the hydro potential in the south of the country, make progress towards an eventual introduction of nuclear energy in the future, and promote competitive NCRE, notwithstanding the fact of allocating additional resources for R&D in NCRE that are not yet competitive.

The Commission makes important environmental recommendations, although it gives way to certain measures that may be subject to discussion, like the need to advance signals regarding greenhouse gas emissions (GGE). Likewise, in citizen participation matters, it establishes the implementation of a participative system to discuss the long-term energy policy, which could entail higher uncertainty levels for the necessary investment required by Chile in energy projects.

All in all, starting today we have a new opportunity to introduce specific improvements to the electricity model allowing the necessary progress, and thereby achieve an electricity development based on a model with greater general acceptance. This should allow Chile to be able to supply the energy required in its development process, in economic and environment-friendly conditions, thus achieving the desired goal of uprooting poverty in coming years.

ⁱ The installed power of the SIC and SING generating companies increased from 14,998 GWh in 1990 to 54,818 GWh in 2010; this development was entirely achieved through private investment.

ⁱⁱ The CADE report indicates that limiting the development of hydroelectric projects raises the cost between 7.0% and 7.5%, and increases the emissions between 37% and 39%, depending on the NCRE penetration rate.

ⁱⁱⁱ The Commission estimates that there could be at least 6,000 potential MW in the XI Region.