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LATIN AMERICAN COMPETITION FORUM

**Session II - Electricity Markets in Latin America: Regional Integration
and Competition Issues**

-- Contribution from Peru --

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The attached document from Peru is circulated to the Latin American Competition Forum FOR DISCUSSION under Session II at its forthcoming meeting to be held on 16-17 September 2014 in Uruguay.

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Session II - Electricity Markets in Latin America: Regional Integration and Competition Issues

THE ROLE OF FREE MARKET COMPETITION POLICY AND CHALLENGES FOR THE INTERCONNECTION OF ELECTRICITY SYSTEMS IN LATIN AMERICA: THE PERUVIAN CASE

-- CONTRIBUTION FROM PERU --

1. Introduction

1. In the 1990s, a long process of easing of restrictions on the electricity market was begun and several Latin American countries implemented a series of efforts to integrate their markets. Many countries in the region entered into bi-national agreements and adopted different multinational initiatives. Significant progress was made this way in terms of regional electricity integration, compared with the integration processes of other energy markets.¹

2. Although the process for the interconnection of electricity systems in Latin America has the potential to significantly benefit areas such as security of supply, economic efficiency, lower prices for end users and the use of clean technologies, there are also aspects which would restrict the development of the interconnection process such as the limited capacity of cross-border transmission networks and restrictions on domestic electricity generation capacity, in addition to the different policy agendas and regulatory frameworks enforced in each country.

¹ The Latin America Energy Organization – OLADE (2013), “Apuntes sobre la Integración Eléctrica Regional y Propuestas para Avanzar.”

2. Institutional aspects of the Peruvian electricity sector

3. In the 1990s there began a period of easing of restrictions in Peru as a response to the issues of productive inefficiency, power cuts and lack of investment caused by a vertically integrated structure. In 1992, Legislative Decree Number 25844, the Electricity Concessions Law, was enacted in the interests of guaranteeing power supply by promoting investment, setting tariffs that sufficiently remunerate investment, promoting competition and increasing service coverage.

4. It was also decided to implement a new market design by separating generation, transmission and distribution activities, and the Committee for the Financial Operation of the System (*Comité de Operación Económica del Sistema – COES*) was created with responsibility for the technical operation of the National Interconnection System (*Sistema Interconectado Nacional – SEIN*) and the management of spot market transactions.²

5. In terms of sectoral policy, the functions were divided as follows: the Ministry of Mining and Energy (MEM) was put in charge of planning and granting concessions; the Supervisory Agency for Investment in Energy and Mining (*Organismo Supervisor de la Inversión en Energía y Minería – OSINERGMIN*) was in charge of tariff setting in the generation, transmission and distribution segments, and of service auditing and oversight, and finally; the Peruvian Institute for the Defense of Competition Matters and the Protection of Intellectual Property (*Instituto Nacional de Defensa de la Competencia y de la Protección de la Propiedad Intelectual – Indecopi*) was put in charge of enforcing free market competition in the sector.

6. In this respect, Legislative Decree Number 1024, Repression of Anticompetitive Conduct Law (*Ley de Represión de Conductas Anticompetitivas*) stipulates that Indecopi³ is the agency responsible for enforcing regulations with regard to financial free market standards.⁴ This legislation aims to prohibit practices that involve collusion and the abuse of positions of power, which can influence the competitive process in markets); and Law Number 26876, Anti-monopoly and Anti-oligopoly Law of the Electricity Sector (*Ley Antimonopolio y Antioligopolio del Sector Eléctrico*), empowers Indecopi to implement prior controls on sector concentrations, seeking in this way to restrict concentration practices that could reduce, harm or hinder competition.

7. As such, the functions of the MEM, OSINERGMIN and Indecopi are clearly defined and delimited within their respective legal frameworks. However, this does not prevent these agencies from interacting and cooperating on competition matters.

3. Tariff regulation and subsidies

8. In the Peruvian electricity sector, distinctions are made between customers based on their level of demand. Customers consuming fewer than 200 KW pay regulated tariffs (regulated customers), those consuming more than 2,500 MW freely contract their power supply (free customers), whereas those consuming between 200 and 2,500 KW can choose between the two conditions mentioned above.

² The current COES structure dates back to 2000, when the North-Central Interconnected System (SICN) and the Southern Interconnected System (SIS) were connected to form the National Interconnected Electricity System (SEIN).

³ Acting through the Competition Commission, the Court for the Defense of Competition and the respective Technical Secretariats.

⁴ With the exception of the public telecommunications market, which falls within the jurisdiction of the Supervisory Agency for Private Investment in Telecommunications (OSIPTTEL).

9. In the case of regulated customers, tariffs are regulated at the generation level (electricity and power), where the electricity price is the variable cost of the last generation unit, and the power price is the cost of installing and maintaining generation unit availability, with a reserve margin set aside for potential adverse events that could affect the electricity system. In 2006, Law Number 28832, the Law to Ensure Efficient Development of Electricity Generation, was enacted, establishing a public bidding system for electricity with the aim of meeting the demand of regulated customers. The regulated tariff also includes the prices determined in these bidding processes.

10. On the other hand, for the transmission segment, the tariff is the same as the total transmission cost, which includes regular investment (based on the new replacement value) and efficient operating and maintenance costs. Whereas, for the distribution segment, the tariff is equal to the value-added distribution (VAD), which includes investment, maintenance and operating costs, distribution losses and user-related costs. The VAD is generated by considering a company as fictitious (efficient model); which is to say, an efficient company that operates with the best available technology for each of the eight typical sectors into which the power distribution system is divided.⁵

11. Furthermore, the design of the electricity sector included subsidy frameworks such as the Electricity Social Compensation Fund (*Fondo de Compensación Social Eléctrica – FOSE*), a subsidy system for energy users with consumption below 100 kWh; and the Social Inclusion Energy Fund (*Fondo de Inclusión Social Energética – FISE*), which subsidizes access to new power sources such as photovoltaic cells, solar panels and bio-digesters.

4. Sector enforcement of free market regulations

12. Indecopi has two mechanisms to oversee free market competition in the electricity sector: structural control for preventative concentration analysis (ex-ante); and behavioral control, where abusive or concerted actions that could affect the competition process are sanctioned (post-ante).

13. Over the period 2006-2013, Indecopi assessed seven concentration requests, one of which was authorized with specific conditions which aimed to limit potential anticompetitive impacts.⁶ With regard to the enforcement of behavioral control, Indecopi constantly monitors the various markets with the support of the MEM, OSINERGMIN and other electricity sector agencies which provide information on the different electricity markets.

5. Progress in the interconnection of electricity systems

14. Although there has been limited development in the interconnection of the Peruvian electricity system with neighboring systems, there is ample potential for medium-to-long term developments. In fact, the COES estimates that, by 2014, the SEIN will have a transmission system in place with a geographic reach that stretches almost to the borders of several neighboring countries, and will have sufficient generation supply to enable power exchange with neighboring countries,⁷ which would allow for the import and export of electricity.

⁵ For the purposes of the 2013 tariff regulation, eight (8) typical sectors were established, including Rural Electricity Systems and the Special COELVISAC (Villacurí) sector.

⁶ Concentration practices are evaluated in view of aspects including any changes to the number of economic agents (due to control changes), relevant markets, potential impacts on market concentration, on potential competition (entry barriers) and on the operability of the electricity sector, as well as taking into account the negotiating power of customers.

⁷ COES (2014), Definitive Update Proposal for the 2015-2024 Transmission Plan COES/DP-01-2014 Report.

15. At present, Peru has an electricity interconnection with Ecuador, which was established as a result of Decision 536 of the Andean Community (CAN). This interconnection, intended for emergency power supply, is limited in scope with a 220 KV connection between Zorritos (Peru) and Machala (Ecuador), and a transmission capacity of 160 MW.⁸

16. The interconnection with Ecuador has great potential due to the complementarities that exist in terms of both countries' water basins, which would provide a suitable balance for hydro generation. In the medium term, this interconnection would gain significance with 2,500 MW of hydro capacity expected in Ecuador by 2017, plus 1,400 MW capacity in Peru. An agreement is therefore in place to begin a 500 KV interconnection project, which would incorporate a 587 km line between Chorrillos-San Francisco (Ecuador) and Piura-La Niña (Peru).⁹

17. Further possibilities exist to develop electricity interconnections with Brazil and Chile. In the first case, an interconnection with Brazil would allow power surplus to be exported from Peru to Brazil, and would increase the reliability of supply. There are currently two bi-national agreements in place¹⁰ with Brazil, enabling the study and development of large medium- to long-term hydroelectric power plants in the center and southern Amazon basin of Peru, with a total capacity of 6,700 MW. Of the projects evaluated, most progress has been made in the 2,200 MW Inambari project. However, feasibility studies are yet to be conducted into the transmission networks that would allow interconnection.

18. In the second case, an interconnection with Chile would allow for the export of power surplus from Peru to Chile, which would be highly beneficial to Peru given the high generation costs in Chile and the generation potential that would exist in southern of Peru with the start-up of the 100 MW Energy Node power stations by 2017.¹¹ However, there is as yet no appropriate transmission infrastructure and no bi-national agreement in place establishing specific interconnection regulations. With that said, the possibility of having two interconnections within the Andean Electricity Interconnection System (*Sistema de Interconexión Eléctrica Andina – SINEA*) has been analyzed: one 150 MW interconnection at 220 KV between Peru and Chile, and another one at 500 kV.

19. It is worth mentioning that, through the Peru-Chile and Peru-Ecuador interconnections, indirect interconnections could be established with Bolivia and Colombia respectively.

⁸ In 2012, Peru used the interconnection to import 2,790 MWh due to power supply problems in the north of the country.

⁹ On the Peruvian side, the transmission system is due to expand as far as the 500 KV La Niña substation by mid-2014, and will extend to the Chorrillos substation on the Ecuadorian side by 2017.

¹⁰ The Peru-Brazil Bi-national Agreement on Energy Integration of May 2008, which enabled the potential of such a power exchange to be evaluated, and the Peru-Brazil Bi-national Agreement of June 2010 for the export of surplus to Brazil.

¹¹ In November 2013, contracts were awarded for the construction of the power plants located in Mollendo and Ilo. These are dual-fuel plants (diesel and natural gas) that will enter operation in 2016 and 2017 respectively.

6. Challenges of electricity interconnection for free market policy

20. The interconnection of electricity systems can have positive effects on competition, as the market power of local companies is reduced if new operators are able to enter the market. However, power exchange between systems must be constant, which will depend on a suitable transmission network and generation capacity.^{12 13}

21. Furthermore, the impacts of interconnection on competition will be dependent on electrical system structures, since a concentrated structure (horizontal and vertical) between activities could facilitate the exercise of this condition by companies with high market power in other electricity markets. For example, if the transmission network operator is vertically integrated with the generation companies, this could provide incentives for power cuts in order to impede the export of electricity to other electricity systems, thus benefiting the related companies and impacting on other customers.

22. On the other hand, it is important to consider how competition is affected by the interconnection of electricity systems with different regulatory frameworks, since some countries in the region have markets dominated by state-owned enterprises. For example, 80% of electricity generation in Brazil is produced by government-owned enterprises.¹⁴ However, electricity markets could be allowed a high level of competition if the regulation of government-owned companies is based on a high-powered incentive scheme.¹⁵

23. In this respect, the interconnection of electricity systems poses significant challenges to competition agencies, since anticompetitive practices in an electricity system can have cross-border impacts and market oversight might not be effective. Often, information to detect possible anticompetitive practices is not easily available or involves accessing information of a restricted nature as in the case of information on costs, power cuts, unsupplied energy quantities, and security measures by system operators. As a result, competition agencies must employ efforts for joint cooperation in order to facilitate the exchange of information and the development of oversight activities.

¹² Jamasb, T. & M. Pollitt (2005), Electricity Market Reform in the European Union: Review of Progress toward Liberalization & Integration. *The Energy Journal*, Vol. 26, Special Edition, pp. 11-41, 2005.

¹³ The effects of interconnection on consumer wellbeing is dependent on several factors including the way in which market spot pricing is established and the strategies pursued by economic agents. Ehrenmann, A., & Neuhoff, K. (2009), A Comparison of Electricity Market Designs in Networks. *Operations Research*, 57(2), pp. 274–286.

¹⁴ See Regional Energy Integration Commission (2013), Electricity Sector Regulation. Available at <https://sites.google.com/site/regulacionsectorelectrico/brasil>

¹⁵ Jamasb, T. & M. Pollitt (2005), Electricity Market Reform in the European Union: Review of Progress toward Liberalization & Integration. *The Energy Journal*, Vol. 26, Special Edition, pp. 11-41, 2005.