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**IEEE POWER ENGINEERING SOCIETY
ENERGY DEVELOPMENT AND POWER GENERATION COMMITTEE**

**PANEL SESSION: LATIN AMERICA--PRICE CAP REGULATION: STIMULATING
EFFICIENCY IN ELECTRICITY DISTRIBUTION IN LATIN AMERICA[#].**

(Luiz Barroso, Tom Hammons, Ruy Varela and Hugh Rudnick)

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INTRODUCTION

On behalf of the Energy Development and Power Generation Committee, welcome to this Panel Session on Price Cap Regulation: Stimulating Efficiency in Electricity Distribution in Latin America.

Electrical distribution companies, being network industries, transport and distribute electric power from connection points of the transmission system to end consumers for industrial and residential usage at appropriate voltage levels. This activity is organized in public service utilities (Discos) that buy power supply from generators in both the long term and spot markets.

For more than two decades, most of the Latin American countries have made drastic transformations to their electrical power sectors in both the unbundling and in privatization processes of the state monopolies. As a consequence of the deregulation process, an important change has occurred in the role of the State. From the owner and operator of electric vertically integrated companies, the State has evolved to become the regulator of activities that are natural monopolies, such as electrical power distribution, owned and or operated by private or public market players. Within this framework, the challenge has been to stimulate an efficient service in distribution, similar to that that would be achieved in a competitive environment.

In order to regulate the electrical power distribution stage, most of these countries have adopted Price Cap regulations, using concepts such as the “model/standard utility” or benchmarking schemes (i.e. efficiency frontiers). The “standard utility model” corresponds to a company whose investments are economically adapted to demand and operates under an optimal plan. In setting distribution tariffs, because of the very monopolistic nature of the activity, both models (standard utility and benchmarking techniques) intend to introduce a virtual competition, trying to make companies more efficient, thus minimizing the present value of all their costs (capex, opex, losses and non supply energy). In general, this has meant important distribution tariff reductions, obtained through a regulated periodic process, the so-called Tariff Review.

The panel will evaluate the results of Price Cap regulation in Latin America power distribution and assess, what can be learned from that experience, and the challenges that may arise in the future.

Panelists and Titles of their presentations are:

[#] Document prepared and edited by T J Hammons

1. Ruy Varela (President, SIGLA), and Eduardo Redolfi Technical Director, SIGLA) "Compared Regulations: The Tariff Revue Process in Brazil, Panamá and Perú. Paper 07GM0920 (E-mail: rvarela@sigla.com.ar)
2. Hugh Rudnick (Pontificia Universidad Catolica de Chile) and Sebastian Mocarquer (Systep). Benchmark Regulation and Efficiency of Electricity Distribution: Strengths and Weaknesses. Paper 07GM0943 (E-mail: h.rudnick@ieee.org, smocarquer@systep.cl; smocarquer@systep.cl)
3. Luis Fernando Alvarez (Siglasul). "Brazilian Discos Price Cap Regulation." Paper 07GM1022 (E-mail: falvarez@siglasul.com.br)
4. Sandra Fonseca (Consultora, ex CREG Colombia). "The Impact of WACC Calculation in the Price Cap Regulation Results: Colombian Case". Paper 07GM 1159 (E-mail: sandrastellacol@gmail.com)
5. Víctor C. Urrutia (Autoridad Nacional de los Servicios Públicos de Panamá (ASEP)). Price Cap Regulation, The Panamanian Experience from the Regulator Point of View. Paper 07GM1167 (E-

Each Panelist will speak for approximately 30 minutes. Each presentation will be discussed immediately following the respective presentation. There will be a further opportunity for discussion of the presentations following the final presentation.

Luiz Barroso (PSR, Brazil), Tom Hammons (Glasgow University, UK), Hugh Rudnick (PUC, Chile) and Ruy Varela (Sigla, Argentina) have organized the Panel Session. Luiz Barroso, Tom Hammons, and Ruy Varela will moderate it.

Presentations

The first presentation is by Ruy Varela and Eduardo Redolfi and is entitled: Compared Regulations: The Tariff Review Process in Brazil, Panama and Peru. Ruy Varela will present it.

In the presentation the Discos Tariff Review process in Brazil, Panama and Peru, three Latin American countries where "deregulation" and privatization of the power industry and the setting of *incentives regulation* in the distribution branch has being successfully implemented through Price/Revenue Cap schemes, will be compared. How the main components of the tariff are set in the three countries and the implications of the different approaches will be examined.

Ruy Varela graduated as an Industrial Engineer from the Buenos Aires Institute of Technology in 1971 and in post-graduate studies in Operations Research from the Catholic University of Argentina in 1973. He is an expert on energy economics and regulation. His recent background was developed following deregulation and privatization of the power industry in Latin America (1992), where he has managed several restructuring and/or privatization projects on generation, transmission and distribution in which SIGLA was involved. He is a founding partner and current President of both energy consultant firms SIGLA (Argentina, 1977) and SIGLASUL (Brazil, 2002).

Eduardo Redolfi graduated as Mechanical and Electrical Engineer from the Cordoba National University in 1967. He is an expert on transmission and distribution system design and construction. His recent background was developed following deregulation and privatization of the power industry in Latin America (1992), where he has managed several restructuring and/or privatization projects on generation, transmission and distribution in which SIGLA was involved. More recently his activity has been focused on the tariff revue process of distribution in Latin American countries, such as Guatemala, Nicaragua, Panama, Bolivia, Peru, Uruguay and Venezuela. He is the Technical Director of SIGLA Energy Consultants of Argentina.

The second presentation has been prepared by Hugh Rudnick (Pontificia Universidad Católica de Chile) and Sebastian Mocarquer (Systep) of Chile. It is entitled: Benchmark Regulation and Efficiency of Electricity Distribution--Strengths and Weaknesses. Hugh Rudnick will present it.

A growing challenge in the restructuring of the electrical sector, where competition is introduced in the generation area, is to achieve equivalent efficiencies in the electrical distribution service, an activity that develops in a monopolistic environment. Chile has had an experience of over 20 years of applying benchmark price regulation to its distribution companies. This summary will discuss the strengths and weaknesses of the Chilean benchmark scheme.

Hugh Rudnick, an IEEE Fellow, is a professor of electrical engineering at Pontificia Universidad Católica de Chile. He graduated from University of Chile, later obtaining his M.Sc. and Ph.D. degrees from Victoria University of Manchester, UK. His research and teaching activities focus on the economic operation, planning and regulation of electric power systems. He has been a consultant with utilities and regulators in Latin America, the United Nations and the World Bank.

Sebastian Mocarquer graduated as an Industrial Electrical Engineer from Pontificia Universidad Católica de Chile. He is presently the Development Manager at Systep Ingeniería y Diseños. He has directed several tariff studies in Chile and has made regulatory studies with utilities, regulators and investment banks in Chile and abroad.

The third presentation is entitled: Brazilian Discos Price Cap Regulation. It has been prepared and will be presented by Luis Fernando Alvarez of Siglasul, Brazil.

It presents an overview of the Distribution regulatory framework in Brazil, describes and analyzes its development over time and the methodologies applied by the Regulator to determine the regulated revenue. A diagnosis is presented of the results obtained during the first Periodic Tariff Review and the trends expected for the second review period.

Luis Fernando Alvarez graduated as an electrical engineer from the Buenos Aires University and has Master degrees in electric market administration and business administration. He has specialized in economic regulation of energy and planning. Over the past 15 years, his professional career has focused on the Latin American market, leading important consulting projects in the region. In Brazil, he was in charge of over 15 consulting processes on tariff review and was consultant of ABRADÉE (Brazilian Association of Electric Power Distributors) during the debate over the regulatory methodology in the sector. He is a founding partner and CEO of the SIGLASUL consulting company.

The fourth Presentation has been prepared and will be presented by Sandra S. Fonseca, Consultora, ex CREG Colombia, Bogota,- Colombia. It is entitled: The impact of WACC calculation in Price Cap Regulation results: Colombian Case. Tom Hammons will summarize it

The risk of applying price cap regulation on distribution systems where the institutional and industrial structure is still weak will be discussed. It has been found that there is a huge impact on end user's tariffs for a tariff-setting period after increases from 9% to 16% on discount rates used to calculate the rate base on the Colombian Discos were introduced.

Sandra Fonseca is an Electrical Engineer who has a Master's Degree in Energy Studies, who was a former Regulator and CREG's Chief Executive Director. She now works as Regulatory and Energy Sector Consultant in Colombia

The final presentation concerns price cap regulation and the Panamanian experience from the point of view of the regulator. Víctor C. Urrutia (Autoridad Nacional de los Servicios Públicos de Panamá (ASEP)), Republic of Panama has prepared it.

The electrical sector in the Republic of Panama was privatized in 1997. Distribution services are regulated using a “Price Cap” scheme. Presented will be the Panamanian experience with Price Cap Regulation in the last 9 years.

Victor Carlos Urrutia has a BSEE degree from Purdue University (1966) and MS/PhD degrees in Physics from Indiana University (1974). He is currently the “Administrador General” of “Autoridad Nacional de los Servicios Públicos” which is the regulatory agency in Panama. Previously he has been active as a consulting engineer in various aspects of electric utility operations, and regulatory matters. He was involved in the restructuring of the power sector in Panama. He was with IRHE, the now defunct public electric utility in Panama, from 1974 to 1985 where he was involved with power system operations and eventually, in management. Since 1990, he has been associated with the Electronics and Communications Department in the University of Panama.