

# The difficulties of open access and pricing in distribution networks

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**Abstract-** Chile has had a successful experience of over 20 years of applying benchmark price regulation to its distribution companies. The same can not be said on implementing open access to the distribution networks, given the vertical integration of the wire business and the retail activity. This summary discusses barriers of entries to third parties that want to compete with the distribution companies and explains the pricing access scheme that has been formulated.

## I. INTRODUCTION

Electrical distribution companies, being network industries, aim to the transport and distribution of electric power from specific points in high or medium voltage lines to end consumers at appropriate voltage levels for industrial and residential usage. This activity is organized in public service utilities that obtain power supply through contracts with generators.

During the last two decades, many countries and geographical areas of the world have made drastic transformations in their electrical sectors, both in terms of segmentation and privatization of state monopolies. Competition has been introduced in generation, while network activities such as transmission and distribution have been subject to benchmark like regulatory processes to stimulate efficiency in what are considered monopolistic activities. This is the case in Latin American countries, where price cap like procedures have been used, as discussed in another panel [1]. The experience in stimulating cost reductions has been positive, as illustrated in the case of Chile [2], where the remuneration of the distribution business has followed a downward pattern, as shown in Figure 1 for the low voltage segment of the largest Chilean distribution company.

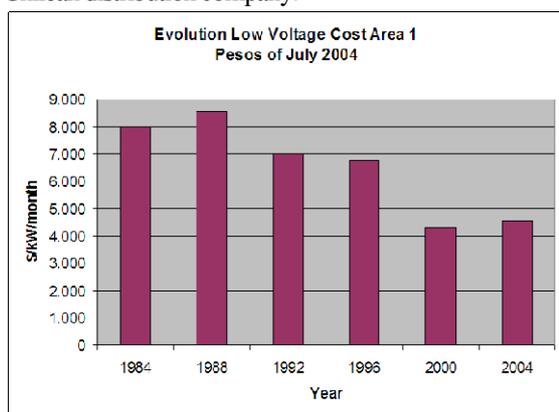


Figure 1.- Cost reductions in distribution

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## II. OPEN ACCESS TO DISTRIBUTION

The success in cost reductions in distribution has nevertheless being questioned. The argument is that in practice the companies have achieved higher efficiencies that are not being transferred to the public. Yearly returns of some distribution companies have been over 25%, while the tariff regulation in theory aims at 10%. Thus, several actors in the field are formulating ways to change this. The separation of the wire business and the marketer or retailer business has been proposed as a central tool to reduce prices at the marketer end. Allowing retail-level competitive commercialization is considered to be a path to economic efficiency. The figure of the marketer in the electric sector in the world is relatively new and recent experiences show ample benefits if they are adequately regulated.

Whatever path is followed, the need for clear open access and pricing rules in distribution networks is a must. Open access is fundamental for two activities, the supply from a generator to a consumer using distribution facilities and the supply from a distributed generator immersed in a distribution network, which wants to use the facilities to carry its business. They are two completely different problems, both related to a monopolistic activity providing open access to competing suppliers. Much has been published in the subject [4-7], proposing different solutions to the issues raised, the question is what is really being applied in practice.

This presentation will summarize the situation of distribution open access and pricing in the Chilean electricity sector and will discuss avenues of progress.

## III. OPEN ACCESS PRICING

The distribution open access regulation in Chile makes it compulsory for distribution companies to provide open access to any consumer immersed in their distribution networks that wants to access third party suppliers.

The main opportunities in distribution open access arise for non regulated consumers that may reach agreements directly with generators. Non regulated consumers correspond to those with loads over 2 MW and to those between 500 kW and 2 MW that opt to be non-regulated (they may also remain as regulated if they want to do so). Regulated consumers have their prices determined by the National Energy Commission. Prices to be paid for open access use of the distribution network correspond to the same paid by the regulated consumers, the Distribution Added Value (the Spanish acronym is VAD). This value is determined every four years under a benchmark process that considers model companies (efficient in investment and management), and will vary depending on the character of the distribution area (considering differences in load density as for example high density urban, urban, rural, etc.).

In 2005 a bylaw was passed that established distribution tolls to access distribution networks, but has had a limited application so far. The distribution toll is calculated to

equal the distribution added value, but considering an adjustment such that if non regulated clients located in a concession area of a distribution company bought power and energy at node prices, which is the price for regulated consumers (including generation-transmission costs plus VAD), the tariff they would pay resulted the same as if they were regulated clients.

This condition was established to assure that distribution tolls do not imply discriminatory costs for network access between regulated and non regulated clients, considering that end clients have distribution tolls included in their tariff determination. This has to be done considering that the final tariff for regulated clients considers and average price of the different nodes of the system where distribution companies purchase power and energy, and that the effect of diversity in load curves obliges the use of coincidental factors, to obtain aggregated demand.

#### IV. OPEN ACCESS TO DISTRIBUTED GENERATION

Chile has recently formulated a regulation to stimulate the development of renewable generation. This generation often takes place immersed in distribution networks, commonly known as distributed generation (DG). The regulation formulates a generous DG open access scheme to distribution networks.

First, it liberates renewable generation of open access fees to both distribution and transmission networks; they can use networks without any payment. They only have to pay measurement costs and estimated average losses. Formulas to calculate distribution losses attributed to DG are being formulated. However, if additional investments are needed in the distribution networks, to adapt them to the introduction of the DG, these must be implemented by the distribution company, and financed by the DG.

The above regulation assumes that the distribution company will benefit with the development of distributed generation, as it will need less investment in networks to supply its consumers.

The distribution company has to provide to the DG all the technical information on the networks affected by the new generation.

Furthermore, the regulation forces distribution companies to buy 5% of its regulated demand to renewable generation. The generator may sell its energy in the spot market or at the regulated price.

#### V. DIFFICULTIES OF IMPLEMENTATION

As said earlier, although in paper the regulations provide for distribution open access and specify pricing rules, the actual implementation is far from taking place.

The main difficulty arises from barriers that distributors may impose on third parties trying to make use of their networks.

A large consumer has been a captive client for the distribution companies and it is not on their interest to loose it to a generator, even if the distribution business is being remunerated through the VAD. A captive consumer in any market provides opportunities for monopolistic behaviour on the part of the supplier.

Another important barrier for third parties is the asymmetries of information in the knowledge of the consumer

needs and the consumer load characteristics. In Chile there has been little done on load characterization and if the distribution companies have anything, there is nothing that forces them to provide it to third parties.

On the other side, if a DG wants to connect itself to a distribution network, it also faces limitations in its negotiation with the distributor, usually a larger business than the new DG. Provisions are made in the regulation that if differences arise between the distributor and the DG, for example on new investments required, an outside party (the Superintendence of Electricity and Fuels) will intervene. Nevertheless, few DGs would want to start a conflict with the local distributor and therefore, they often accept less attractive connection conditions.

#### VI. ALTERNATIVES FOR THE FUTURE

Unless the separation of the wire owner and marketer/retailer business is introduced in Chile and consumer information is made public, there is little to expect from present distribution open access and pricing regulations, particularly for the development of the retail business.

The need is to advance into that separation, being it an accounting division or a complete business partition under different investor owners.

For distributed generation, there is the need to develop procedures to improve the asymmetric negotiation between the distributor and the DG. There are enormous possibilities for abundant new mini hydro in the south of Chile and its development will be facilitated if advances are made in the indicated direction.

Finally, a deeper assessment has to be made of the pricing scheme in place. The Distribution Added Value needs to be revisited, clearly identifying what the wire costs and the marketer costs are, particularly when third parties become involved in the distribution supply. Nowadays, it is assumed that the cost for the distribution company is the same for its own consumers as for third party consumers, which in the opinion of the authors has some distortions involved.

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## VIII. BIOGRAPHIES



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