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**PERSPECTIVES OF MERGERS AND ACQUISITIONS IN ELECTRICAL
ENERGY DISTRIBUTION COMPANIES**

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Table of Contents

Introduction.....	2
Chapter 1 – Changes for the privatization process.....	4
1.1 Reforms in the 1990s	4
1.2 Auctions of the distribution firms.....	8
Chapter 2 - Mergers and acquisitions in the distribution sector	11
2.1 Benefits of mergers and acquisitions.....	11
2.2 Holding groups in the distribution sector	14
Chapter 3 – Case: RGE in the State of Rio Grande do Sul	18
3.1 Characteristics of the State	18
3.2 Energy subsidies and costs to consumers	19
Chapter 4 – Consolidation and advent of concessions	27
4.1 The advent of concessions.....	27
4.2 Opportunities for firms	31
Conclusions	35
References	37

Introduction

In Brazil, electricity is a federal public good and it is provided by firms, private or public, according to the Federal Constitution. For a long time, public services, including electricity, were provided directly by the State. During the 1980s, the country faced the need for fiscal adjustment, which added to the low investment capacity of the government and led to a discussion of this model of service.

Reforms of the Brazilian state, which occurred in the 1990s, triggered a process of privatization in sectors dominated by state enterprises and changed the way public services are rendered to society. The government sought to encourage the involvement of private groups in the market and expand investment in sectors, increase efficiency and better serve the consumer. This movement enabled the country to pass from a Social State, in which it acts directly in the economic and social order, to a Regulator State, able to bound its participation in the economic activity by the delegation of public services to agents capable of managing the businesses, according to the social conceptions of the State.

After the enactment of Law # 8,987 in 1995, which regulated the regimen of concessions and permissionaires which rendered public services, the market of energy distribution was opened to private capital by auctions. Naturally, after privatization, some business groups have been formed, seeking benefits from acquisitions and mergers of distributors.

Some firms are acquiring others, in a clear signal of the reconfiguration and consolidation of the sector. Additionally, in the near future, the electrical sector will face huge changes with the end of the concessions in the year 2015. The Federal Government and the Congress will have to decide whether to renew these concessions or to auction them, considering the benefits for the society and business efficiency.

This paper presents in Chapter one an introduction of the reforms started in 1990. At the time the State was the major party responsible for providing the infrastructure of electrical energy and enabled the auctions of the utilities, specifically those related to the distribution of energy. Chapter one introduces also the general features of the Brazilian electricity sector.

Chapter two discusses the benefits of mergers and acquisitions and describes the holding groups working in the distribution sector in Brazil. Chapter three shows a case of a utility, RGE, in the State of Rio Grande do Sul, which supplies subsidized energy for some other small distribution firms.

Chapter four makes an analysis of the coming years, when most of the concessions will expire and utilities may be reorganized in order to consolidate the holding companies. The last chapter concludes the aspects discussed.

Chapter 1 – Changes for the privatization process

1.1 Reforms in the 1990s

The Brazilian Federal Constitution of 1988, expresses in the art. 21¹ that the Federal Union shall have the power to operate, directly or through third parties, the electric power services. The pattern established in the Constitution, with the prediction of the participation of private economic activity, inaugurated a new period in the operation of infrastructure sectors in Brazil.

At the end of the 1980s, Brazil had a huge deficit in infrastructure investment and the consequence was bad quality public services offered to the population. The failure of the government as provider of energy services was characterized by the incapability to make investments, political interference in the utilities whose control was in the hands of the public administration, equalization of tariffs in the country and cross-subsidization. All these factors showed the inefficiency of public management and the need for reforms.

The legal framework of the reforms that occurred in Brazil in the last decade started with the enactment of Law # 8,031, from April 12nd, 1990, establishing the National Privatization Program (PND), with the following objectives:

¹ Article 21. The Union shall have the power to:

(..)

XII - operate, directly or through authorization, concession or permission:

a) the services of sound broadcasting and of sound and image broadcasting;

services and facilities and the energetic exploitation of watercourses, jointly with the states wherein those hydro-energetic potentials are located;

-
- I - reorder the state's strategic position in the economy, shifting to private activities unduly exploited by the public sector;
 - II – help to reduce debt, contributing to the improvement of public sector finances;
 - III - allow the resumption of investment in businesses and activities that will be transferred to private enterprise;
 - IV – help to modernize the country's industrial park, increasing its competitiveness and enhancing entrepreneurship in various sectors of the economy;
 - V - allow the government to concentrate its efforts on activities that the state's presence is crucial for the achievement of national priorities;
 - VI - contribute to the strengthening of capital markets, by increasing the supply of securities and the democratization of capital ownership of companies that will comprise the program.

Another step happened with the enactment of Law # 8,631, from March 4th, 1993, which abolished the system of guaranteed pay, establishing that the tariffs must correspond to the values needed to cover the cost of service for each utility, according to its specific characteristics, to ensure the provision of adequate services (paragraph 2, art. 1 of Law # 8,631/93).

Later, Law # 8,987², on February 13rd, 1995, was enacted, which disposed with the system of concessions and permissions of the provision of public services provided in art. 175 of the Constitution³. It focused on the electrical, transport and telecommunications sectors.

² The objectives of Law # 8,987/1995, are: a) establish the basis for the delegation of public services in Brazil, which were executed by the state, to private enterprise, b) open, through the formation of consortia, the possibility of foreign capital participation in the provision of public services, c) through auctions, allow the inflow of new companies, and d) eliminate government subsidies, especially those of a political-electioneering, as the "social tariff", for consumers, or the subside for large consumers, mainly the energy-intensive industries.

³ Article 175. It is incumbent upon the Government, as set forth by law, to provide public utility services, either directly or by concession or permission, which will always be through public bidding.
Sole paragraph - The law shall provide for:

This Law set out several duties and obligations for the government and the firm. It also established guidelines regarding the bidding process, and also secured general guidelines on tariff policy, aiming to offer conditions to preserve the economic-financial equilibrium, as described below:

Law # 8,987/1995

Article 9. The tariff of public service will be awarded by price set by the winning bidder and is preserved by the rules in this Law, in the tender document and in the contract.

§ 1 Tariff will not be subject to specific legislation and only in cases expressly provided by law, they may not be charged only in the case of existence of alternative public service and is free to the user.

§ 2 The contracts may provide mechanisms for review of tariffs in order to keep the economic-financial equilibrium.

This device allowed the tariff inequality across regions of the country, since tariffs were established at the time of signing the concession contract. The economic-financial equilibrium is preserved by the revision of tariffs. In the case of electricity distribution companies, it occurs on average every four years.

This means that the holder of a concession or permission shall seek conditions for its own sustainability, according to the peculiarities of its market, while preserving tariffs established by the contract. Thus, it is essential that the concessionaire is paid by the operation of the service provided.

I - the operating rules for the public service concession- or permission- holding companies, the special nature of their contract and of the extension thereof, as well as the conditions of forfeiture, control and termination of the concession or permission;

II - the rights of the users;

III - tariff policy;

IV - the obligation of maintaining adequate service.

As the electricity services were not described in this legal text, Law # 9,074, on July 7th, 1995 was edited, which regulated the previous legislation, setting standards to concessions and concessions of energy services.

The design of the institutional model was in left to Coopers & Lybrand Consulting, hired in 1996 by the Ministry of Mines and Energy to adapt the experiences of other countries to the specificities of the electricity sector in Brazil. Among the main suggestions, the work included:

1. establishment of initial contracts for the transition to a competitive power market;
2. promotion of competition in the generation and sale of electricity;
3. regulation of transmission and distribution, considered natural monopolies.

Furthermore, a regulatory agency was created whose mission was to provide favorable conditions for the electric power market to develop a balance between the agents and the benefit of society.

The National Agency of Electrical Energy - ANEEL, created by the Law # 9,427, from December 26th, 1996, was in charge of the regulation and supervision of production, transmission, distribution and sale of electricity in accordance with the policies and guidelines of the federal government.

Among other goals were implementing policies and guidelines of the federal government for the operation of electric power and the exploitation of hydraulic potential, and being responsible for the transference of concessions, permissions and authorizations, and ensuring compliance with the antitrust laws.

As a regulator, the Agency has an important role in the treatment of mergers and acquisitions of companies.

1.2 Auctions of the distribution firms

As the legal reform was defined, the electrical sector was opened to private capital by the auctions. The privatization of electricity distribution utilities began in July 1995, with the bidding of ESELSA, at the Espirito Santo state, whose services cover about 90% of the state. Table 1.1 presents the results of auctions held on the Stock Exchange of Rio de Janeiro:

Table 1.1 Results of the auctions of the distribution utilities

Firm	Year	State	Winner	Grand (millions)	% of company auctioned	Goodwill
ESELSA	1995	ES	Banks Pactual, Icatu, Opportunity, Bozano Simonsen, Nacional and GTD and pension funds.	US\$ 390	54%	12%
LIGHT	1996	RJ	AES, Houston, EDF, CSN	US\$ 2,300	51%	0%
CERJ	1996	RJ	Endesa, Chilectra, EDP	US\$ 900	70%	30%
COELBA	1997	BA	Iberdrola and pension funds	US\$ 1,800	65%	77%
AES SUL	1997	RS	AES	US\$ 1,400	90%	94%
RGE	1997	RS	CEA, Consortium VBC (Votorantim Energia, Bradesplan Participações and Camargo Corrêa), Previ	US\$ 1,600	91%	83%
CPFL	1997	SP	VBC, Previ	US\$ 2,700	57%	70%

Firm	Year	State	Winner	Grand (millions)	% of company auctioned	Goodwill
ENERSUL	1997	MS	Escelsa	US\$ 210	76%	84%
CEMAT	1997	MT	Grupo Rede, Inepar	US\$ 800	85%	21%
ENERGIPE	1997	SE	Cataguazes, Upstick	US\$ 560	86%	96%
COSERN	1997	BA	Coelba, Guaraniana, Upstick	US\$ 700	78%	74%
COELCE	1998	CE	Endesa, Enersis, Chilectra, Cerj	US\$ 1,000	83%	27%
ELETROPAULO	1998	SP	AES, Houston, EDF, CSN	US\$ 3,000	75%	0%
CELPA	1998	PA	QMRA	US\$ 400	55%	0%
ELEKTRO	1998	SP	Enron	US\$ 210	47%	99%
BANDEIRANTE	1998	SP	EDP, CPFL	US\$ 860	75%	0%
BORBOREMA	1999	PB	Cataguazes-Leopoldina	US\$ 80	75%	
CELPE	2000	PE	Iberdrola, Previ, BB	US\$ 1,800	80%	
CEMAR	2000	MA	Pensylvania Power	US\$ 500	86%	
SAELPA	2000	PB	Cataguazes-Leopoldina	US\$ 360		

Source: BNDES

The total of these privatizations that took place between 1995 and 2000 reached over fifteen billion US, which would not have been obtained if there was no goodwill in the purchase of some utilities. The Brazilian Development Bank (BNDES) has financed about seven billion US, and contributed to the success of these negotiations.

On the other hand, several firms have not been acquired by private equity groups for various reasons. Some others have belonged to private groups and remained under their control, as was the case of firms in Sao Paulo, Companhia Luz e Força Santa Cruz (CFLSC), Empresas de Energia Elétrica Bragantina S/A (EEB), Empresa de Eletricidade Vale Paranapanema S/A (EEVP), Companhia Nacional de Energia Elétrica (CNEE), Caiuá - Serviços de Eletricidade S/A., Companhia Paulista de Energia Elétrica (CPEE), Companhia Sul Paulista de Energia (CSPE), Companhia Luz e Força de Mococa (CLFM) and Companhia Jaguari de Energia Elétrica (CJE).

Other companies remained under the control of state governments, as was the case of Centrais Elétricas de Santa Catarina (CELESC) and Companhia de Eletricidade do Amapá (CEA). Some federalized companies remained in the control of Eletrobras, the Brazilian public company of energy, which controls firms in the areas of generation, transmission and distribution. The distribution firms are Companhia de Eletricidade do Acre (ELETROACRE), Centrais Elétricas de Rondônia (CERON), Companhia Energética do Piauí (CEPISA), Companhia Energética de Alagoas (CEAL), Boa Vista Energia, Manaus Energia e Companhia Energética do Amazonas (CEAM).

All those companies that were not privatized should be reverted back under control of the Union in July 2015, due to the end of the concession contract, or the exhaustion of the legal term that company has to operate, as the case of CEA, and also according to what is defined in the sectorial legislation.

Chapter 2 - Mergers and acquisitions in the distribution sector

2.1 Benefits of mergers and acquisitions

The rules for transfer of shares, mergers, acquisitions and split wills are contained in legislation, especially in the Law # 6,404, from December 15th, 1976 - Deals by Civil Society. Mergers, as it defines, are an operation that unites two or more firms to form a new company which will succeed them in all rights and obligations.

Acquisition, on the other hand, is the purchase of shares, maintaining the separation of firms. When a group of companies is controlled by a major company it is a holding.

The business objectives of these types of operations include the creation of shareholder value. The decision on the acquisition or merger depends on the strategy of the business group, according to market conditions. In fact, it constitutes an expansionary program of the company into new markets, seeking to introduce practices to its portfolio.

Mergers and acquisitions are reflected in the purchase of assets, including equipments, facilities, machinery and other tangible assets of the business. They can also include intangible assets, which are related to technology developed by the firm for a particular industrial process, their networks of suppliers, patents and trademarks that the company has engaged in negotiations.

Firms merge and acquire to expand their market power, making possible the sale of products and services at more competitive levels, or reducing costs of activities

undertaken by the company. Market power is due to the size of the company and its ability to compete.

The strategies are classified according to the result on the market and their structures. The horizontal structure is the acquisition or merger of companies operating in the same market segment; the advantages of this type of structure are revenue gains and cost reductions.

Another type, vertical structure, corresponds to the control of more than one step of the value chain; in other words, the control of the one who distributes or provides a good or service. Finally, a third classification is the conglomerate, which is a merger or acquisition of a company unrelated to the activity of another.

Other reasons for mergers and acquisitions are:

1. discrepancies in expectations of future cash flows and the associated risk to the expected outcome (asymmetric expectations): Different expectations lead investors to assign different values to the same company, causing bids to purchase;
2. irrationality in the decisions of individual leaders: hypothetical justifications for mergers, according to which, under conditions of uncertainty, individuals do not always make rational decisions. Such irrationality is diluted or nullified when considered in aggregate over the interaction of various economic agents;
3. compensation and tax incentives, tax credits arising in respect of losses accumulated by one of the firms involved, which can be offset in future years by another firm, if it has profits;
4. mergers as an alternative to dividends and share repurchases: the present situation in firms with free cash flows;

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5. replacement costs and market values: the situation that arises when the replacement costs of assets of a firm are larger than their market value;
 6. searching for economies of scale and scope, resulting from possible reductions in costs caused by increased production levels, greater effort to streamline the research and development, joint use of specific inputs and the transfer of technology and knowledge (know-how);
 7. anti-competitive effects and search for monopoly power, resulting from gains from increased market concentration and the consequent reduction in competition;
 8. reduction of the risk of insolvency, arising from the merger of two or more firms with cash flows without perfect correlation;
 9. increase the welfare of directors of companies, even though the operation would cause a negative impact on market value of their shares, as the replacement of directors who are not maximizing the market value their firms;
 10. operate in markets with high barriers to entry, such as natural monopolies;
 11. seeking additional capacity and operational synergies, due to increased demand and expectations of increased shareholder wealth as a result of the merger.

In the electricity sector, a horizontal structure corresponds to the merger or acquisition within distribution and transmission firms, traders or generators. In this case, firms in the same market segment negotiate among themselves. The vertical structure would, for example, be purchasing a generator for a distributor.

Mergers and acquisitions of distributors in the electricity sector follow the logic of horizontal concentration and, therefore, have some peculiarities of the benefits achieved through the process. First is the search for efficiency. Second, they can be part of an expansion strategy of acquisitions in the electricity sector. Third is the increased reliability of the network, which reduces the amount of fines imposed by the regulator through control over the entire distribution network, which allows better planning of investments.

2.2 Holding groups in the distribution sector

Energy firms are the sixth sector that performed merger and acquisition transactions in Brazil. This number shows the dynamics of the industry and the constant search for competitive advantages for businesses.

After the privatization of the utilities, which began with the sale of ESCELSA, the market has significantly modified its configuration. Economic groups were reconfigured and, thus, control of several companies has passed to a different group. The holding operation is gaining more space and indicates a trend toward consolidation of a few groups controlling various distributors.

There are sixty three distribution companies of electricity in Brazil. Of these, thirty one are controlled by eight economic groups, including the Eletrobras group. With the merger of assets between Companhia Energética do Amazonas (CEAM) and Manaus Energia S/A, approved by ANEEL in March 2008, this holding company also controls Ceal (Alagoas), CEPISA (Piauí), the CERON (Rondônia) ELETROACRE (Acre) and Boa Vista Energia (Roraima). Table 2.1 shows the configuration of the holding groups of distribution utilities working in Brazil.

Table 2.1 Holding groups in 2010

Group	Firm	N. of consumers (x1,000)
Rede Energia	EBE	116
	CAIUÁ	200
	CELPA	1,600
	CELTINS	380
	CEMAT	880
	CFLO	48
	CNEE	93
	EDEVP	152
	ENERSUL	718
Energisa	EMG	342
	EBO	153
	ENF	88
	ESE	519
	EPB	975
Endesa	AMPLA	2,300
	COELCE	2500
EDP	BANDEIRANTE	1,500
	ESCELSA	1200
CPFL	CPEE	48
	CPFL Paulista	3400
	CPFL Piratininga	1,300
	CSPE	68
	CJE	30
	EFLM	38
	RGE	1,100
	ELFSC	170
NeoEnergia	CELPE	2,700
	COELBA	4200
	COSERN	970
AES	ELETROPAULO	5700
	AES SUL	1,150
CEMIG	CEMIG	2200
	LIGHT	3,500
Eletrobras	ADESA	664
	CEAL	805
	CEPISA	840
	CERON	416
	ELETROACRE	180

There is another kind of distribution company called Cooperative of Rural Electrification – CRE. Companies of this group started their activities by supplying energy to consumers in rural areas and where utilities had no economic interest in furnishing energy to them because of the high investments needed in building the electrical network and the profile of consumers, basically rural consumers.

A measure adopted by the federal government to maintain the CREs working and stimulating their expansion was to offer high discounts in energy contracted by them to supply their consumers.

As cities grew up, many of these CRE started to supply energy for consumers in urban areas, where utilities were interested in supplying energy. On the other hand, some federal programs forced utilities to expand their networks to rural areas and nonprofit markets, which brought CREs and concessionaires closer together.

These facts provoked disputes for clients among CREs and utilities and forced CREs to improve the quality of their services, with less interruptions and stability on their networks electrical signal, better attention for consumers, and some other services demanded by the society.

An effort to overcome this situation was adopted by the federal government, establishing that ANEEL would have to identify all the CREs in the country and promote their regularization as a permissionaire or as authorized agent.

Permissionaires supply energy to consumers in rural and urban areas, and in this case they must be regulated as a concessionaire, with tariffs and financial-economics equilibrium preserved when tariffs are calculated by the regulator. Authorized agents

supply energy only to rural consumers and do not have a regulated service, but have to preserve a certain quality of their services offered.

The result of this process is that fifty three CREs are able to be permissionaires and more than twenty CREs must be authorized agents. Most of them are situated at the states of Sao Paulo, Parana, Santa Catarina and Rio Grande do Sul. The first CRE signed the act of permission at 2008 and as of 2010, thirty eight CREs are working as permissionaires.

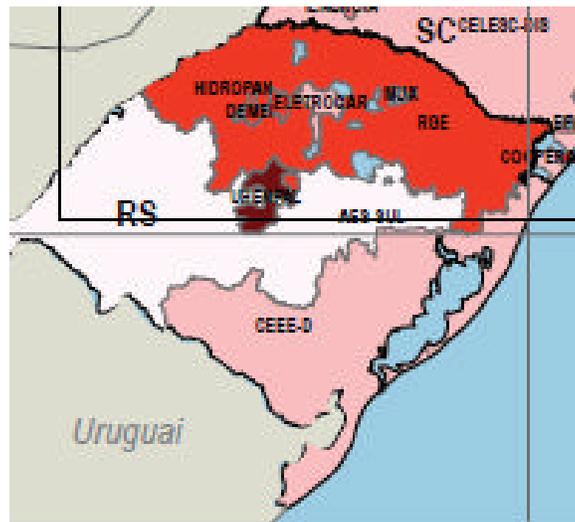
Having so many concessionaires and permissionaires creates opportunities for the government to deal with synergies among the firms in order to promote lower tariffs for consumers.

Chapter 3 – Case: RGE in the State of Rio Grande do Sul

3.1 Characteristics of the State

The state of Rio Grande do Sul is situated at the south of Brazil, whose capital is Porto Alegre and occupies an area of a 281,748.538 km², with 496 municipal districts and an estimated population of eleven million people. The Figure 3.1 shows Rio Grande do Sul and the organization of the public utilities in the state.

Figure 3.1 The State of Rio Grande do Sul and the organization of utilities



Source: ANEEL

The state has eight utilities of distribution, eight permissionaires and six CREs, not yet regularized as permissionaire or authorized agent. Among the utilities, three of them have more than a million customers and all the other utilities and permissionaires have less than 46,000 customers.

The Rio Grande Energia – RGE is one the biggest concessionaires in Rio Grande do Sul. It is present in 254 municipal districts in the north and northeast of the State, in an area of 90,718 km², which distribute electrical energy to 3.6 million people. Its consumers are mainly industries, residences and commerce, which represent more than 70% of the total.

In its concession area, there is a huge presence of companies in the following segments: food and beverage, rubber and plastics, metallurgy, vehicles and transportation, furniture, engines and equipment. It supplies energy to four utilities (DEMEI, ELETROCAR, HIDROPAN, MUX), six permissionaries (CERILUZ, CERMISSOES, COOPERLUZ, COPREL, CRELUZ-D, CRERAL) and three CREs, that buy energy from a supplier utility to furnish their specific market.

3.2 Energy subsidies and costs to consumers

According to the Brazilian legislation, utilities, permissionaries and CREs can buy energy with discounts, when they are connected to the network of a distribution company and buy energy from it. As economical resources are limited and each company must maintain its financial-economics equilibrium, the discounts are supported by the consumers of the supplier. In other words, energy consumed by the clients of a supplied utility is subsidized by those of a supplier. Table 3.1 shows the number of consumer of each utility supplied by RGE.

Table 3.1 – Firms and number of consumers

Company	Number of consumers
RGE	1,235,096
DEMEI	27,031
ELETROCAR	32,396
HIDROPAN	14,782
MUX	8,661
CERILUZ	13,050
CERMISSOES	22,314
COOPERLUZ	13,654
COPREL	45,849
CRELUZ-D	18,898
CRERAL	6,657

Source: ANEEL

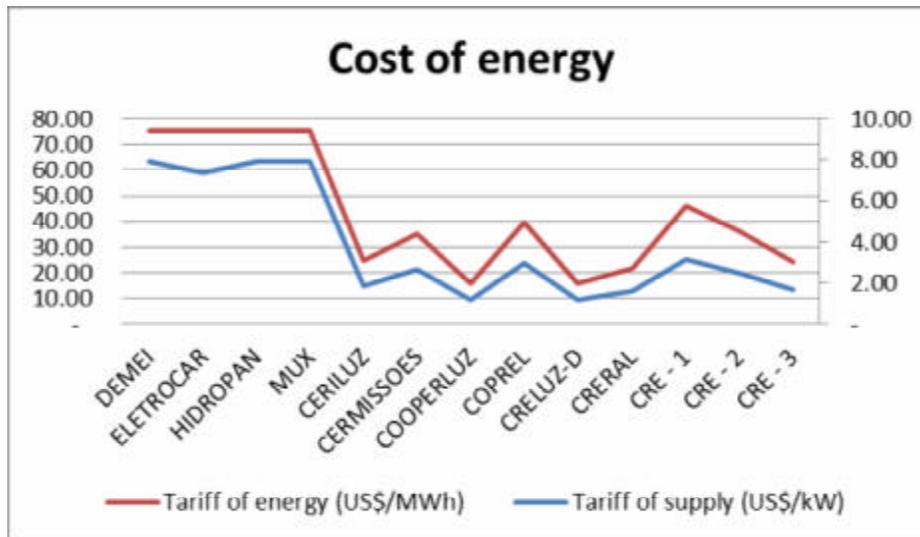
Permissionaires and utilities supplied by RGE are small and do not have as many consumers as RGE. The total of consumers of these supplied utilities represents less than 20% of the RGE. The permissionaire COPREL is the biggest among the supplied, with 45,849 consumers, followed by the concessionaire ELETROCAR with 32,396 and DEMEI with 27,031. The concessionaire HIDROPAN and the permissionaires CERMISSOES, CERILUZ, COOPERLUZ and CRELUZ-D have comparable number of consumers, as MUX and CRERAL.

An initial analysis of it can lead to conclusions that their costs of energy acquisition are similar, or they maybe can operate having the same cost of operation, at least those who have a similar number of consumers.

Energy is acquired by the payment of two tariffs. The first is allocated to the usage of the network and its capacity. The more energy required in a certain instant, the more capacity the network must have to uphold, or the amount of energy does not flow as it's needed. It's measured by kW (kilo watts).

The second one is the energy per se, the electrons flowing through cables that turn the lights on, make machines work and enable electronic equipment to operate. It's measured in MWh (mega watts hour). The Figure 3.2 shows the actual cost of energy of each utility.

Figure 3.2 – Cost of energy for firms



Source: ANEEL

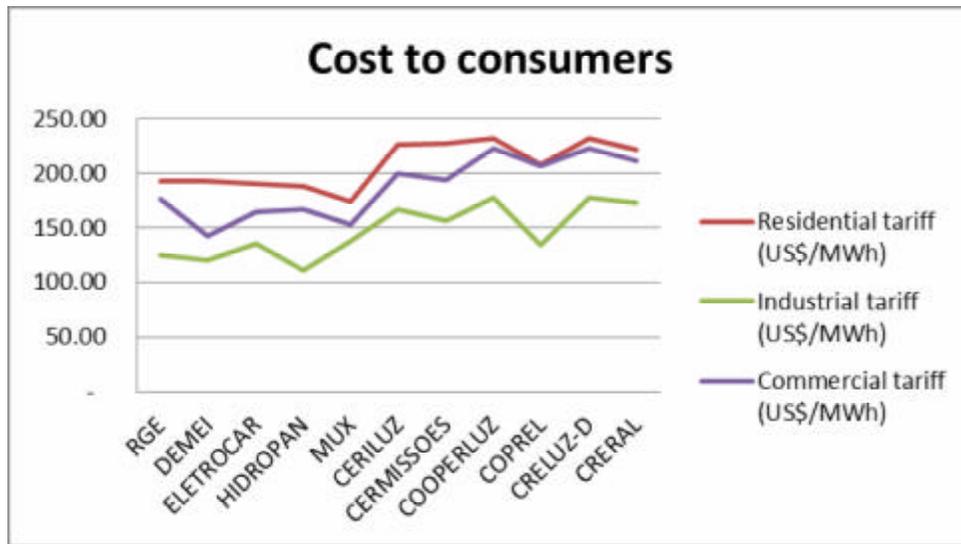
The four utilities have the same tariff of energy, about seventy seven US\$/MWh, and similar tariffs of supply, eight US\$/kW. Among permissionaries and CRE, tariffs are lower, and varies from seventeen to forty five US\$/MWh, and one to three US\$/kW.

Those differences are caused by the subsidies in the tariffs. For utilities, subsidies are not as high as for permissionaries. Utilities are subsidized only in the tariffs of supply, but permissionaries and CREs are subsidized in both tariffs, and in some cases they pay 20% of the tariff of a concessionaire to acquire energy.

Subsidies are paid by the consumers of RGE and year-by-year are growing in value. Subsidies for permissionaries and CRE will cost for RGE US\$ 85,470,195.02 and concessionaries will cost US\$ 14,755,295.67. If this amount was simply suppressed by using the RGE tariff calculus, its consumers could pay 7% less in general in their tariffs.

Rio Grande do Sul state is characterized by the presence of industries and commerce. Those consumers and residences correspond to more than 70% of the market of energy of all the utilities. Tariffs of RGE for these classes and its supplied utilities are shown at the Figure 3.3.

Figure 3.3 – Tariffs to consumers of each firm



Source: ANEEL

Comparing RGE tariffs to the other four utilities, it's possible to check that in all the classes, RGE are more expensive than the supplied firms. The same logic is not applied to the permissionaries, which have higher tariffs than RGE. This happens because during their regularization process to become a permissionaire, they could raise their tariffs up to 20% in relation to the supplier RGE in order to preserve their financial-economics equilibrium.

This curious fact exists despite permissionaires and small utilities having similar markets and a comparable number of consumers. So, it's expected that they have tariffs to buy energy and tariffs of selling energy at near levels, but this premise is not confirmed. In truth, it was revealed the more discounts at the acquisition of energy, the more expensive are the tariffs for permissionaire's consumers. For utilities, subsidies are maintaining tariffs for consumers at a lower price than RGE ones.

Some questions can be asked from this observation. Is it correct to subsidize tariffs and do the subsidized concessionaires need lower tariffs to preserve their equilibrium? Is it right that RGE consumers pay for most part of energy acquisition by permissionaires and CRE and even in this case their tariffs of service are still higher than RGE?

In both cases, by the economical point of view, the answer must consider that financial resources are limited and it means that if someone is not paying for something, another one will have to pay for it. In the case of RGE, that is a serious problem; its consumers have to maintain subsidies for ten public utilities because of political decisions, which guarantee discounts to those small groups.

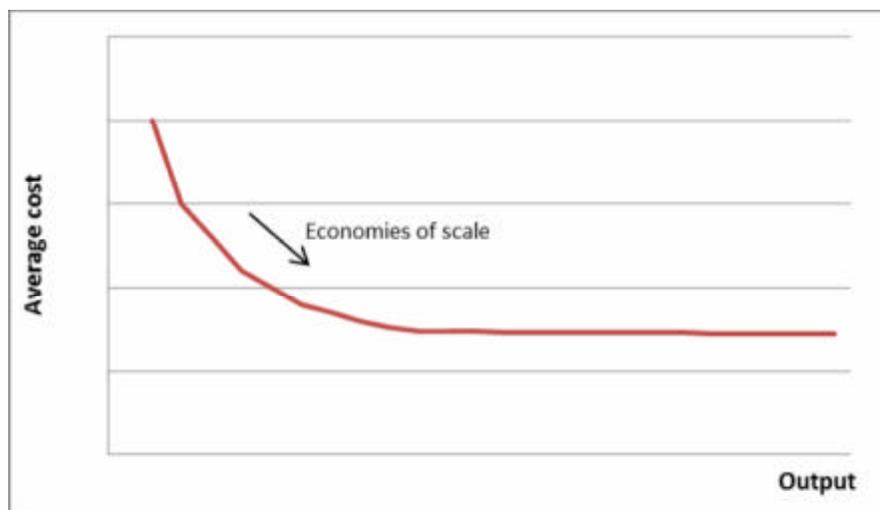
However, it seems that for small utilities, a part of the subsidies could be withdrawn, at least to raise tariffs for their consumers to the level of RGE consumers. In the case of permissionaires and CREs, this measure could take their consumers' tariffs to very high levels and could pledge the development of their region, mainly because industries may decide to install their production lines in another area.

The high number of firms has historical reasons. Those small utilities belonged to private groups or district governments not interested in selling their assets in auctions or to private groups, as for RGE group. On the other hand, CREs pressured the government and congressmen to ensure their existence and turn them into permissionaires and authorized agents.

The result was expressed at the Law # 9,074, enacted July 7, 1995, that considered valid all the utilities that were not auctioned and determined they were valid for the period of twenty years. This had guaranteed their existence and postponed a reorganization of the companies. Having so many utilities in the same state can be harmful and maybe the solution for it is reorganizing these utilities into a group that can offer at the same price for all the consumers of the state.

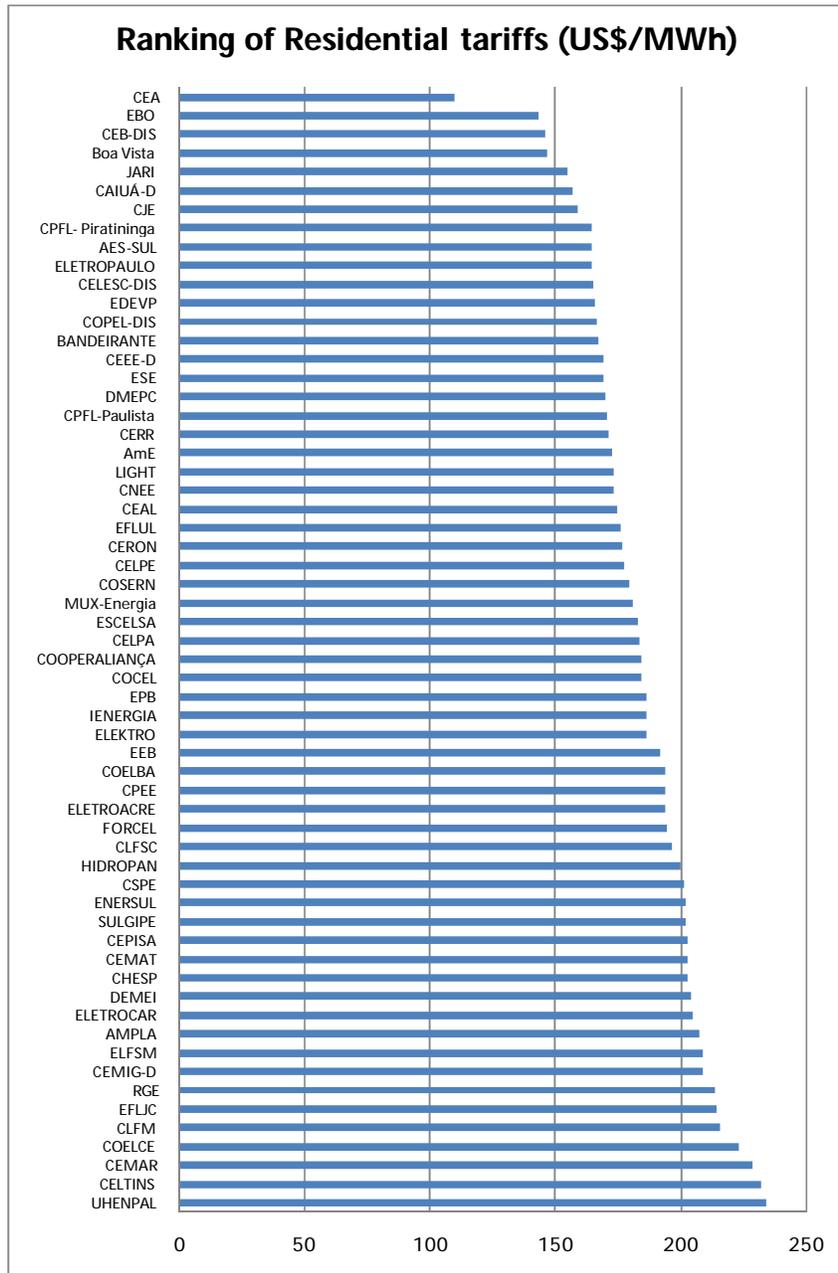
However, at the actual context, with so many utilities operating in the same state, tariffs will still have different values and the small groups will still need subsidies to attend their consumers. This happens because of what economists define as economies of scale. Economies of scale occur when the average cost of a firm falls as output increases. It refers to the case where a firm can increase its output more than in proportion to its total input cost. In the long-run, the average cost curve of a firm is shown in the Figure 3.4.

Figure 3.4. Average cost of a firm with economies of scale



For a small utility, increasing their economies of scale is harder than for a bigger one. Fixed costs at the distribution of electrical energy are high and the more consumers a firm as RGE has, the less expensive for each one to pay it. To the contrary, the fewer consumers a firm has, the more its consumers have to pay for the same cost for the firm. The Figure 3.5 shows the ranking of residential tariffs among the utilities of Brazil.

Figure 3.5– Ranking of residential tariffs of utilities



In this ranking, RGE tariffs occupy the 7th position among the most expensive ones. If the subsidies were removed from the calculus of the RGE tariffs, it could go to a 17th position at the national ranking, a significant fall.

Of course other aspects are associated with the determination of a tariff, but this can show how subsidies have a high cost for those who have to pay for it, the consumers.

An opportunity to reorganize the utilities in Brazil as a whole will occur at the year 2015, when concessions that were not auctioned will expire.

Chapter 4 – Consolidation and advent of concessions

4.1 The advent of concessions

The concession contracts for electricity distribution utilities were awarded in different forms in Brazil, as described in Chapter one. Some distributors were auctioned and others got their concession agreements without cost to their shareholders. Whatever the case, these contracts were obligations imposed by the Federal Constitution, which provided grants and allowances that should be auctioned and the concession period shall be included in their contracts ⁴.

Law # 9,074 of 1995, which regulates this constitutional guidance, presents the following content:

Art. 22. The concessions of power distribution achieved by art. 42 of Law #. 8,987 of 1995 may be extended, since regrouped according to criteria of operational and economic rationality, at the request of the concessionaire or the grantor initiative.

§ 1 In case the concessionaire does not agree with the regrouping, it will be kept the current areas and term of concessions.

⁴ Article 175. It is incumbent upon the Government, as set forth by law, to provide public utility services, either directly or by concession or permission, which will always be through public bidding.

Sole paragraph - The law shall provide for:

I - the operating rules for the public service concession- or permission- holding companies, the special nature of their contract and of the extension thereof, as well as the conditions of forfeiture, control and termination of the concession or permission;

II - the rights of the users;

III - tariff policy;

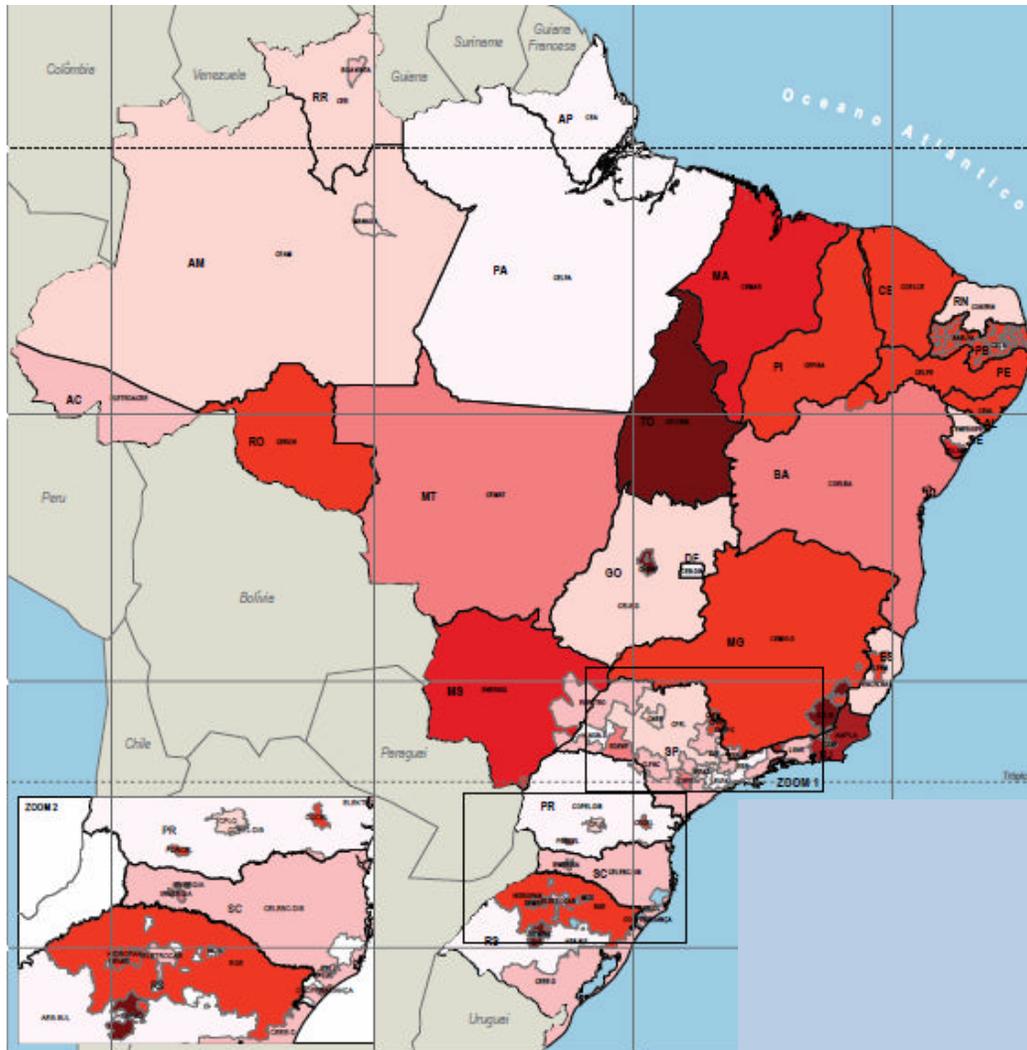
IV - the obligation of maintaining adequate service.

§ 2 The extension will have only one term, equal to the largest among the remaining concessions regrouped or twenty years from the date of publication hereof, whichever is greater.

Therefore, the concessions that were auctioned signed concession contracts with a term of 30 years and may be extended once for 20 years. The concessions have not signed contracts with a bid deadline 2015⁵, without extension of the concession. The figure 4.1 shows the organization of the utilities in Brazil.

Figure 4.1 – Organization of utilities in Brazil

⁵ For some utilities the final year varies from 2015 to 2017.



Source: ANEEL

Of the sixty three distribution companies, forty one cannot extend their contracts, which reveal the importance of this period for the sector. These companies represent 30% of energy consumed in the country. There is much discussion about it, because there are groups that advocate a change in the law to allow the extension of that period, while others argue the impossibility of extension and bidding for all companies.

The extension of the concessions can be beneficial when considering the continuity of public service provision and maintenance of investments. As the distribution activity requires constant investment in the network, you can avoid a lack of

investment during the final period of the concession and thus ensure the quality of service.

However, this alternative does not allow the reorganization of the concession areas, since there will still be the same sixty three firms. In this scenario, the search for operational and economic rationality is impaired, since there remain several utilities serving a few cities. The consumer cannot benefit from economies of scale through the reorganization of the concession areas.

Bidding, on the other hand, allows the concession areas to be rearranged prior to their completion. In such circumstances, it is possible to form groups that cover more municipalities, so there will be more economies of scale for the utility in that area. Moreover, the bidding ensures equality between the companies in an auction for a particular utility, and therefore can benefit consumers with more affordable tariffs, depending of the type of auction adopted.

Therefore, bidding utilities, rather than extending the contract through changes in sectoral legislation, works in favor of economic rationality. However, the auction without reorganization of the areas adds little to the low tariffs, but it will not provide the economies of scale for smaller utilities.

The most reasonable solution is to consider the auction preceded by the reorganization of areas. Brazil has twenty seven units of the federation, each with different economic and social realities. Bounding the concession areas with the borders of each state is a good solution because energy tariffs within the state become the same value for each class of consumer, no longer differentiated according to the municipality. At the same time, the economies of scale could be passed on to consumers in the form of low tariffs, which increases the competitiveness of each state.

The case of Rio Grande do Sul, with several small utilities being supplied by a bigger one, occurs in other states, such as Santa Catarina, Parana, Goias, and many others. As demonstrated, a subsidy is paid by the consumer of the supplier utility. When

CREs and permissionaires are also being supplied, the greater the subsidy to be paid by the consumer of the supplier utility. Thus, the reorganization of the concession areas could include the incorporation of these groups in favor of low tariffs.

4.2 Opportunities for firms

The methodology used by ANEEL to calculate tariffs includes incentive mechanisms for setting the ceiling price or price cap. In this model, goals are set as a productivity gain for a period of time, which encourages the search for efficiency to reduce the firm's costs beyond its goal. The tariff is the result of calculated costs so that the company can cover its costs efficiently.

The tariff is a result of a group of various components included in parcels A and B. In parcel A, called unmanageable costs, are those whose variation amounts are not administered by the firm. Such costs include the purchase of energy, acquired in public auctions of energy generated by power plants; spending on transmission, which are the costs for transmitting energy from plants to distribution networks; and industry charges, which are defined in specific legislation and have specific destinations. These costs are fully transferred to tariffs.

In parcel B are the manageable costs, which include operational costs, depreciation quotas and investment performance. To determine the operational costs, ANEEL model from 2007 to 2010 is called Reference Company. This is a regulatory model that the firm uses to simulate the same conditions to determine the utility costs of operating an efficient business.

The result of this process was the reduction of operating costs of most regulatory utilities, when compared to the previous cycle, from 2003 to 2006. Thus, the ability of the firms to generate cash business was also reduced. Less efficient firms are having problems meeting the new parameters fixed by the regulator.

ANEEL has opened for discussion the methodology to be applied for the cycle from 2011 to 2014. The Weighted Average Cost of Capital (WACC) is the expected rate that a firm pays to holders that finance its assets. Considered in the calculation of the WACC is the structure capital, the cost of debt and the cost of equity.

For the cycle 2007-2010, the WACC was established at 9.95% after taxes and for the cycle 2011-2014 was initially calculated by the regulator at 7.15% after taxes. Among the reasons for this change was that the country risk perception has fallen in Brazil systematically.

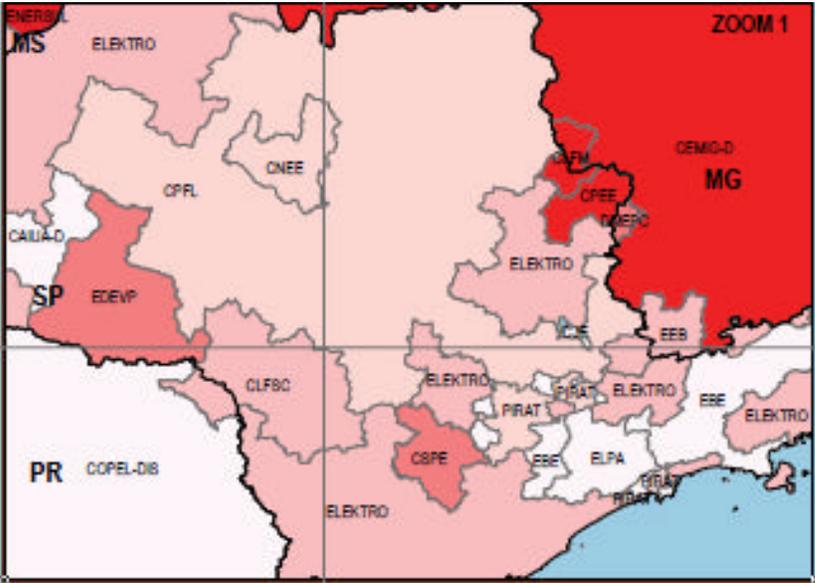
The evaluation of Brazil by international agencies as an investment grade reinforces this change in the risk perception to invest the country as a whole. Bond ratings are important to both firms and investors. A bond's rating is an indicator of its default risk; the rating has a direct, measurable influence on the bond's interest rate and the firm's cost of debt. Most bonds purchased by institutions are restricted to investment-grade securities. Many banks and other institutional investors are required by law to hold only investment grade bonds.

Another fact is that many firms are controlled by foreign groups, such as Europeans groups. In 2008, the European markets were affected by the world crisis. Firms in different sectors of their economies are viewing the strategy of expansion to other countries and the reduction of their assets in many cases. It is hard to ensure, but it is possible that some of their distribution assets in Brazil may be sold in the coming years. This may increase mergers and acquisitions of distribution firms and take the sector toward a consolidation.

The merger can be a key factor to ensure energy supplies and sustainable economic growth. In Brazil, the largest business groups in the distribution are CPFL, Cemig and AES Brazil, which represent 30% of the market. In countries where the distribution sector is consolidated, large business groups corresponds to 60% to 80% of the market.

CPFL, for example, has a huge presence in the state of Sao Paulo and is interested in the purchase of Elektro, a company that also operates in over 220 cities in this region and its profit in 2009 was almost 200 million US. Another company that is of interest is the Bandeirante, which belongs to the Portuguese group EDP. Such purchases, if implemented, would enable the CPFL economies of scale and strong regional consolidation. Figure 4.2 shows the Sao Paulo area.

Figure 4.2 – Utilities at the state of Sao Paulo



Source: ANEEL

Between 2003 and 2009, Cemig invested more than 5 billion US, and nearly one-quarter of that amount was spent on the acquisition of a utility in Rio de Janeiro, Light, and now Cemig is targeting another company in the state, Ampla, which is controlled by the Spanish group Endesa. Elektro is also in the plans of Cemig’s business strategy to enter at the Sao Paulo market.

AES Brazil controls the country's largest distributor, Eletropaulo, but its stocks are not totally under its control. BNDES has 49.99% of the stocks and periodically signals that it can sell its position at the firm. AES group has the priority to buy these

stocks and is keen to acquire them because they do not want to lose their position in the Brazilian market. Also, the group is one of the candidates to acquire Elektro, which will benefit the firm because of the synergies and gains of scale in the operation of the two neighboring firms.

Copel, the Parana state-owned firm, said on some occasions that Celesc, a state-owned firm of Santa Catarina, may be the target of its expansion strategy. Celesc faces issues of adequacy of operating costs at levels considered efficient by ANEEL.

Eletrobras is negotiating the acquisition of CELG, a state-owned firm of Goias, because the company faces serious difficulties and is not paying sector charges, which do not allow the tariff adjustment calculated by ANEEL to be passed on to consumers. The state legislature authorized the governor to sell company shares.

Tariffs calculated by ANEEL are established at a level to maintain the economical financial equilibrium. As CELG is not applying the annual tariffs, it means consumers are paying less than they had to and, consequently, the firm's deficit grows.

Despite all these strategies, the number of distribution utilities is not decreasing; what is decreasing is the number of groups controlling firms. When a group acquires one utility, it does not merge them, despite in practice the control of the firm is in the hands of the group in practice.

One of the reasons for that is the application of the tariff review process for each utility, even if controlled by the same group, limits the ability of the regulator to share with the consumer gains from acquisition. This does not occur in mergers, which unify areas of concessions and enable the regulator to share the benefits of the economies of scale with consumers.

Conclusions

The sector of electricity distribution has undergone major reforms over the past twenty years. Brazil has opened their state owned firms to private capital. The sector now has private and public companies coexisting in the market.

This model has guaranteed to consumers the supply of electricity and the universalization of the service and also enabled investors to create businesses, buying and selling firms in search of profit. ANEEL plays an important role in this dynamic scenario.

Mergers and acquisitions can render advantages in the market, and when well administrated, improve the gains of firms. On the other hand, as a regulator, the State must establish parameters for this business dynamic and enable the society to be benefited from the formation of economic groups.

The perspectives for Brazilian infrastructure industry are very positive. The country has stabilized its economy and was awarded with the investment grade, which indicates the relatively low risk of default. Foreign and domestic investment groups are participating in this period of changes and are investing huge amounts of money in the electrical sector.

In the distribution of electricity, despite the dynamic of the sector in terms of mergers and acquisitions, there are some advances that can be promoted by the government to reduce tariffs paid by consumers, which include residences and industries.

The cost of energy in Brazil rose in the past years and this can affect the development of the country in the long term. Reducing subsidies is one of the measures

that can be adopted to stimulate efficiency among firms. Reorganizing the concession areas is also one good objective to be pursued.

Soon, the electricity sector may undergo further changes with the deadline of concessions. The reorganization of these areas of concessions, reducing the number of distribution utilities, provides the fall of its average cost as it provides electricity to more consumers. These economies of scale are reversed to consumers, lowering tariffs.

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