CHANGES TO THE TARIFF POLICIES OF THE ELECTRICITY DISTRIBUTION SEGMENT AND ITS EFFECTS ON THE ECONOMIC PERFORMANCE OF INVESTMENTS IN FIXED ASSETS

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ABSTRACT

Objective: This article discusses the effects of changes in electricity distribution regulation on the economic performance of fixed asset investments.

Theoretical Framework: The analyses in this study are based on Ferreira’s (2021) research conducted on a concessionaire’s asset database, considering the period between two tariff cycles.

Method: The methodology used in this study included the analysis of regulatory documents related to the 4th Tariff Review Cycle of a specific distributor, from April 2013 to May 2018. The analysis of these documents was conducted through organization and comparison of versions, based on continuous readings, following Ferreira’s (2021) guidelines.

Results and Conclusions: Although they can cause distortions in the evaluation and decision-making processes regarding investments, the regulatory changes analyzed in the research had a positive effect on the economic performance of the selected sample’s assets.

Research Implications: It was observed that regulatory changes are important for regulation to adapt to the reality and needs of the sector but can impair the evaluation and decision-making process regarding fixed asset investments in the electricity distribution segment in Brazil.

Originality/Value: The research results emphasize the importance of concessionaires actively participating in public discussions proposed by the regulatory agency to carefully evaluate all possible consequences of regulatory changes for the economic performance of assets and the provision of public service.

Keywords: Fixed Assets, Investments, Economic Regulation, Electric Sector.

AS ALTERAÇÕES DAS POLÍTICAS TARIFÁRIAS DO SEGMENTO DE DISTRIBUIÇÃO DE ENERGIA ELÉTRICA E SEUS EFEITOS SOBRE O DESEMPENHO ECONÔMICO DOS INVESTIMENTOS EM ATIVOS FIXOS

RESUMO

Objetivo: Este artigo discute os efeitos das alterações na regulação de distribuição de energia elétrica sobre o desempenho econômico de investimentos em ativos fixos.

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Referencial Teórico: As análises deste estudo utilizam como alicerce teórico a pesquisa realizada por Ferreira (2021), realizada a sobre a base de dados de ativos de uma concessionária, considerando o período entre dois ciclos tarifários.

Método: A metodologia utilizada neste estudo incluiu a análise de documentos regulatórios referentes ao 4º ciclo de Revisão Tarifária de uma distribuidora específica, no período de abril de 2013 a maio de 2018. A análise desses documentos foi conduzida por meio da organização e comparação de versões, com base em leituras continuadas, seguindo as orientações de Ferreira (2021).

Resultados e Conclusões: Embora realmente possam causar distorções nos processos de avaliação e tomada de decisão sobre os investimentos, as alterações regulatórias analisadas na pesquisa afetaram positivamente o desempenho econômico dos ativos da amostra selecionada.

Implicações da Pesquisa: Observou-se que alterações regulatórias são importantes para que a regulação se adapte à realidade e às necessidades do setor, mas podem prejudicar o processo de avaliação e de tomada de decisão sobre investimentos em ativos fixos no segmento de distribuição de energia elétrica no Brasil.

Originalidade/Valor: Os resultados da pesquisa enfatizam a importância de as concessionárias participarem ativamente das discussões públicas propostas pelo órgão regulador, a fim de avaliar cuidadosamente todas as possíveis consequências de mudanças regulatórias para o desempenho econômico dos ativos e a prestação do serviço público.

Palavras-chave: Ativos Fixos, Investimentos, Regulação Econômica, Setor Elétrico.

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1 INTRODUCTION

Tariff policies are the instrument by which the government, assuming its role as regulator of the electricity distribution services in Brazil, normalizes the collection and fixes the rates to be charged (Law No. 8,987, 1995) of the users of the service, which are the main source of cost of the system. Since the institutional reform in the 1990s, through the concession, permit or authorization schemes, the Union has transferred the performance of the public service to the winning companies (Fontana, 2013). In the case of the Brazilian electricity sector, a company, in the role of the agent that received the license for the provision of the public service, invests its capital in fixed assets (goods and equipment) indispensable for the performance of the service, and, as a counterpart, expects to receive the return and the remuneration of this invested capital. As a regulated service, in order for the right to this remuneration to be guaranteed, the company must comply with the regulations, comply with the directives, control and supervision of the regulatory body. These conditions are provided for in the contracts concluded between the Union and the company, as well as in the regulatory provisions of the sector, which set out the rights and duties of the parties involved and the functional rules of the system (ANEEL, 2015a). The prerogative of the remuneration of capital is one of the main elements that, among others, make the provision of the public service economically and financially attractive and ensure that the market has an interest in assuming the execution of the object of the concession, permission or authorization (Rocha, Bragança & Camacho, 2006).

When talking about the electricity distribution segment, it is strategic for the companies that decide to take over the service to consider, in their decision making processes about the application of capital, the normative provisions defined by the sector's pricing policies. The
decision on which investments will be made must include, besides the technical, operational and systemic needs, the economic evaluation of the assets, understood as the projection of the future benefits that they will generate for the company (Catelli, Parisi & Santos, 2003; Mota & Pimentel, 2021). To this end, it is essential to pay attention to the procedures for calculating and determining revenue and tariffs, since it is through them that the return on the capital invested is obtained. One of the prerogatives that is evaluated when investing in a regulated sector, as is the case of the service of distribution of electricity, is that regulation creates foreseeable effects of the investments on the income, allowing a more precise calculation about the return of each type of investment carried out. The analysis of the standards and methodology used by the regulator in the tariff setting mechanisms allows companies to estimate the revenue impacts of investment decisions, which does not mean that they are not subject to some degree of uncertainty. This uncertainty is due to a history of institutional ruptures in the evolution of the regulatory framework of the sector in the country, besides some level of fragility in the establishment of clear and consistent rules by the regulatory body (Kessler, 2006).

As this is a capital-intensive segment, in which a good part of the assets are intranspor
table, difficult to reverse and with a perceived financial return in the long term (Tankha, 2004), the decision-making on the investments that should be made in this changing regulatory scenario becomes even more relevant.

2 THE CHANGEABILITY OF TARIFF REGULATION ON INVESTMENTS IN THE REGULATED ELECTRICITY MARKET

The Periodic Tariff Review - RTP is the event and the main mechanism by which revenue earned by businesses and tariffs charged to consumers are changed. This is the moment when the investment deployed will be assessed by the regulator and recognized to make up the basis for calculating the tariffs, following the guidelines of the current regulation, and only then will the investor receive his due remuneration (Submodule 2.3 PRORET, ANEEL, 2015). This restores the economic-financial balance of the concession (Souza, 2016), understood as the equation "charges-remuneration" that allows the continuity and improvement of the service, and must be ensured for the entire contractual period, preserving the interest of the investor and the user (Natal, 2013).

Considering that the RTP of the distribution concessionaires happens with an average periodicity of five years, and that between one event and another these concessionaires continue making their investments so that the service is provided properly, it is perceived that there may be a large time window between the deployment of the asset (here understood as being the investment) the definition of the revenue and the consequent receipt of these amounts through the revised tariff. Since it usually takes many months between the design, planning and completion of these investments, it is often the case that the decision making of a works plan is carried out years before the Tariff Review. If there are significant changes in tariff regulation between these events, any prior study analyzing the viability of an investment portfolio will become mere expectations, which may not be realized if the future situation proves to be very different from that found at the time of the initial decision. In such a situation, even if backed up by regulatory clauses, the economic performance of an investment will only be truly known in the future, when the revenue is set by the regulator and the tariffs then set.

Thus, considering that the rules established by the regulatory body are not immutable and are constantly improving - whether in search of further tariff modicity and modernization of methodologies, or to avoid regulatory obsolescence or to allow for the correction of possible
misconceptions or inaccuracies incurred in the past (ANP, 2020) -, unexpected changes in the regulation determining the remuneration of investments may worry the investor, by bringing uncertainties as to the effective future return of capital that is intended to apply in the electricity distribution segment.

In this sense, it is relevant to investigate the consequences that the changes in the tariff regulation generate on the economic performance of the investments made by concessionaires of services granted, identifying their effects on decision-making in long-term investments.

3 REGULATION IN THE ELECTRICITY SECTOR IN BRAZIL

The Brazilian electricity sector deals with resources of general interest and has as its main exercise the provision of services of a public nature, being, at the moment, highly regulated. It has experienced a period of great development, accompanied by a series of reforms in recent decades. Between 1930 and 1980 the infrastructure in the production and distribution of energy was developed under the coordination and command of the State (Lorenzo, 2001-2002), which, especially with the establishment of Eletrobrás as one of the bases of energy policy, based the growth of the sector on public investment with support for the creation of state-owned companies (Francescuti & Castro, 1998). The subsequent establishment of the "Regulatory State" was in fact a movement that many countries in the world - both developed and developing - underwent (Bacon & Besant-Jones, 2001). The provision of the public service was then no longer performed directly by the State and regulatory agencies were established to protect public interests, independently, so that they were able to negotiate the objectives of efficiency and equity, correcting market failures and restricting monopolies, while maintaining the political and social objectives oriented to the well-being of public services (Kelly & Geyer, 2018). The creation of these regulatory agencies marked a significant change in the way the Brazilian State operates in various government sectors (Pereira et al., 2021).

In the case of the electricity sector, the regulatory body, ANEEL (Agência Nacional de Energia Elétrica), uses a set of rules to establish the balance between the interests of the entities involved, the so-called Tariff Policies (Instituto Acende Brasil, 2007). Before the sectoral reform, which occurred in the 1990s, the Brazilian electricity sector's tariff policy was based on the practice of an equalized tariff throughout the country, compared to the vertical structure in force at the time (Fugimoto, 2010).

With the de-verticalization of the sector and the advent of Law No. 9,427/1996, each segment started to have its own way of defining tariffs. The electricity distribution segment started to adopt the price cap tariff methodology (Amaral Filho and Bacic, 2008) - also known as Performance Regulation or Price Regulation - in a movement already carried out similarly in other countries (including in other regulated sectors, such as telecommunications) (Braeutigam & Panzar, 1993). In this methodology the regulator allows the prices that the regulated company charges for its services to diverge from the costs incurred during a specified period of time (Sappington, & Weisman!, 2016), which in the case of Brasileiro is the period between tariff reviews.

In the price cap methodology, instead of passing all the costs on to the tariffs, the price is already initially stipulated and detaches itself from the cost, which makes the company receive incentives to be as efficient as possible: if the price is given, the decrease in operating costs and the quest for economically efficient innovation makes it possible for the margin of gains to be greater. That is why this regime is also known as Incentive Regulation, since in the current Brazilian rules the distribution concessionaire appropriates part of the efficiency achieved, as a form of stimulus and recognition, and the other part returns to the consumer, as compliance with the principle of tariff modicity (Instituto Acende Brasil, 2007).
However, despite the benefits of the *price cap* methodology, encouraging the pursuit of increased economic efficiency may over-stimulate the cost reduction by distributors, to the point of compromising the performance and reliability of the distribution network (Jooshaki, Abbaspour, Fotuhi-Firuzabad, Moeini-Aghtaie, & Lehtonen, 2018). As a form of containment, the regulatory body, in order to avoid a risk scenario, evaluates the distributors based on indicators that reflect the quality of the service provided (ANEEL, 2015b) and applies a reward-penalty mechanism that drives the distributors to improve or at least maintain the reliability of their networks at an acceptable level (Jooshaki et al., 2018). In addition, to prevent a possible deterioration of the regulated service, economic and financial indicators have been defined (Technical Note No 111, ANEEL, 2016), to monitor the financial situation of distributors and to ensure that, in the medium term, they are able to maintain the management of the concession.

It is through mechanisms such as these that the regulatory body practices its role as a mediator between the parties involved in the provision of the electricity distribution service, in an attempt to ensure that the distributor will have the technical and financial conditions to operate and invest in the concession, preserving the quality and continuity of the service, remunerating the investments appropriately, without overburdening the consumer. In other words, in order for there to be interested in contracting with the public administration, the establishment of the tariffs must consider the requirements and conditions of the market, without leaving aside a careful evaluation of the economic capacity of those who use the service (Rodrigues Junior & Vieira, 2019).

Thus, investors interested in the electric power distribution segment will make a series of financial decisions about the capital contribution taking into account all these variables, through methodologies that can contribute to the measurement of the future results of an investment in electric assets, verifying if they are really interesting from the economic and financial point of view.

### 4 ECONOMIC PERFORMANCE OF INVESTMENTS IN FIXED ASSETS MADE BETWEEN TARIFF REVISIONS OF AN ELECTRICITY DISTRIBUTION CONCESSIONAIRE

In a study conducted in 2021, Ferreira (2021) sought to identify the effects of changes in the tariff regulation of the electric power distribution segment on the economic performance of investments in fixed assets. To this end, it used as a basis the information from the 4th Periodic Tariff Review of a distributor, in order to understand the consequences of these changes in the economic performance of investments made between tariff reviews.

The prevailing approach in the research was quantitative, with the use of a large volume of data of a numerical nature that served as a sample to make inference to a population (Fernández & Díaz, 2002). Although this is the main approach, the analysis of this data was also done with a qualitative focus. This was because the qualitative approach is indicated when, in order to reach an understanding of a problem, it is necessary to interpret experiences and meanings in a specific context, taking into consideration the role of the researcher in the construction of knowledge (Petty, Thomson, & Stew, 2012).

As a guiding context for the collection of data, he opted for documentary research, knowing that this procedure has as its main characteristic the use, in its majority, of primary information sources, that is, documents (written or not) that were not the object of analytical treatment. The collection of this data can be done both at the moment of the occurrence of the fact or phenomenon, and after it (Marconi et al., 2015) - the last option being the one used in his work. The official documents made available were used for the research, both owned by the

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5 The work addresses only the regulation of electricity distribution on captive consumers (Ferreira, 2021).
company under analysis (reports and database) and external documentation (legislation, regulations and regulatory manuals).

As an alternative for evaluating the decisions taken on the investments of the electricity distribution utilities, adjusted to the specificities of the sector and considering the pricing policies, Ferreira (2021) used Gecon's Model for the Economic Management of Investments in Fixed Assets, adopting the concept of the Economic Result of Assets. The Model measures the result of an investment evaluating the best alternative, within market parameters, that is, considering the opportunity cost at the time of the decision (Mello & Pereira, 2008). This approach seeks to express the economic value of the asset to the company, that is, its outcome over time. This result is represented by its flow of future benefits, considering its direct costs and opportunity costs, and the calculation is made through discounted cash flow (Catelli et al., 1996). Following the same economic criteria used in the valuation of capital market assets, current spot market prices are used as valuation and opportunity cost parameters, as well as the concepts of present value and constant currency when projecting the value of money over time (Catelli et al., 2003).

The object of Ferreira's research (2021), called "Concessionária D", is a large company, which holds an extensive concession area for the distribution of electricity in the southeast region of Brazil, serving a significant number of consumers. The methodology of the Economic Management System - Gecon was used as a way of measuring and comparing the economic performance of a portfolio of investments already carried out (works already completed and in operation). To do so, since this is a documentary and descriptive research, the data collection was done starting from the internal documents of the concessionaire and the normatives of the regulatory body, which define the parameters considered for the formation of the Regulatory Compensation Base and the rate of remuneration of these investments.

The following were selected as the database: (i) the regulations that consolidate the economic regulation of the Distribution segment, notably those relating to the tariff procedures that have an impact on the definition of the remuneration of the capital invested in fixed assets; (ii) the Evaluation Reports of the Regulatory Compensation Base of the concessionaire, presented in the 3rd and 4th Periodic Tariff Review; (iii) the spreadsheets used by ANEEL for the calculation of the distributor's tariffs in the 3rd and 4th Tariff Review; and (iv) the internal documents of the concessionaire that indicate the effective budgetary approval of the works of investments in fixed assets carried out throughout the 4th tariff cycle.

For the mapping of the changes in pricing policies, the rules defining the parameters for calculating the remuneration on capital were specifically selected, which includes the formation of the Regulatory Compensation Base and the definition of the rate of remuneration. In order to verify the Economic Performance of fixed assets to be calculated using the proposed Gecon Investment Decision Model, the return on capital of those investments was understood as the "benefit generated by the asset", considered as such for the calculation of the proposed Economic Result in the methodology.

The aim was to measure the Economic Result of the investments completed during the 4th Tariff Review Cycle at two different times: first on the date when the decision makers of the concessionaire consented to the execution of the investment - called the moment (1) - and then on the date when their remuneration was calculated and approved, in the Tariff Review process - called the moment (2). This criterion was chosen as a way of ascertaining whether the economic

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6 Gecon is a management model system run by Professor Armando Catelli and developed together with the Graduate Program in Controllership and Accounting of the School of Economics, Administration and Accounting of the University of São Paulo (FEA/USP) (Catelli et al., 2003).

7 Gecon's Economic Management Model of Investments in Fixed Assets has a Decision Model for Investment in Fixed Assets that considers the Economic Result of the investment as the sum of the "operating contribution margin" and the "financial contribution margin" of the investment.
Economic Result that is calculated at the moment of the decision of the work - when the assessments of the viability of the investment are made by the concessionaire - reflects or not the Economic Result actually achieved in the approval of the income, considering the regulation in force at each moment, applied on the same portfolio of investments.

5 MEASUREMENT OF RESULTS

Observing the analyzes of Ferreira (2021), the documents surveyed for the research were analyzed through the investigation and organization of the material, based on continuous readings and from the comparison of the versions of each of the selected regulatory procedures. The period considered for the verification of changes was the interval for the 4th cycle of Tariff Review of the distributor studied, between April 2013 and May 2018.

The income derived from the assets invested by the concessionaire, as well as its costs, is included in the calculation of the Required Revenue (RR), which is paid by the consumer through the tariff. Among the plots and components of the Required Revenue, the work described here interested only those that deal directly with the electrical assets in which the investor's capital is allocated (Ferreira, 2021). Thus, Ferreira (2021) points out that the survey disregarded methodological changes or updated values related to other components of the tariff, as well as changes arising from spelling adjustments or formatting, focusing exclusively on those changes that are really significant for the calculation and result of the Capital Remuneration component (Ferreira, 2021).

The result of the lifting and consolidation of the changes in the selected regulations, used to calculate the Capital Remuneration component, indicated that each normative procedure has undergone, on average, three revisions since the start of the concessionaire's 4th tariff cycle. Not all of these revisions had a direct impact on the calculation of the remuneration for investments in fixed assets, stipulating changes in other elements or components of the Regulation.

Among the modifications that generated implications in the calculation of the Capital Remuneration and that would be relevant from the investor's point of view when making the decision for the allocation of its capital, were those relating to the composition of the Regulatory Compensation Base, the way of valuation of assets and formation of the New Replacement Value - NRV.

Changes in the methodology for setting the rate of return on such investments (WACC) were also observed. There have been changes, for example, in determining the optimal capital structure and in calculating the rate of return. These methodological changes, even though they are expected to be carried out periodically, imply a variation in the WACC rate that is more unpredictable than that which would be expected considering the simple updating of the values on which the calculation is based. Even though they may sometimes be advantageous for the concessionaires, these changes modify key premises for the decision maker, who, in idealizing the investment works, projects their return taking into account these premises.

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8The RC component - Capital Remuneration - is that which, within the tariff, corresponds specifically to the payment of the remuneration of the electrical assets of the concession. It is this component that indicates, in fact, the financial gain that the investor has in employing his capital in the concession assets (Ferreira, 2021).

9The Regulatory Compensation Base (BRR) is the sum of investments in assets made by the distributor for the provision of the service awarded. It is determined through an asset valuation procedure of the concessionaire, during the tariff review process, when investments are examined for eligibility (for compliance with mandatory regulatory criteria) and when they are regularly valued (ANEEL, 2016a).

10The New Replenishment Value Method is the methodology for valuing the concessionaire's assets and results in a benchmark value, which considers the yield and depreciation on the costs of replenishing the respective assets. It is through this methodology that the Regulatory Remuneration Base in Tariff Revisions is determined (Sub-module 2.3 PRORET - ANEEL, 2015, p. 8).
In summary, the Economic Result of the assets evaluated in Ferreira's research (2021), considering the methodology of the Economic Management System - Gecon, points to an increase of 10.8% at the moment (2), in relation to the moment (1). This means that, considering the changes in the pricing policies, the Economic Performance of these assets in the Periodic Tariff Review of the 4th cycle, in 2018, was higher than what, it is imagined, would be expected in 2013, when these works were conceived, based on the regulation in force at that time.

6 FINAL CONSIDERATIONS

For any investor, the quality and reliability of the information that underpins the evaluation of the investments are fundamental for decisions about the application of capital to be taken. Particularly for investments in regulated sectors - especially those aimed at the provision of public services - the information provided and the standards determined by the regulatory bodies are indispensable for a proper and consistent evaluation. In a government-regulated economic model, formalistic strategies are adopted to ensure the compliance of the organization (Liu, Wing-Hung Lo, & Zhan, 2019), especially in the case of public service delivery, where compliance is a requirement for obtaining revenue through the tariff paid by consumers. Regulation, then, is a fundamental premis for the investor to identify the expediency of investing his capital there or not. This is one of the reasons why regulators need to ensure predictability to business environments (Kessler, 2006), so that companies and investors can operate in a more stable and effective environment while performing service on behalf of public administration.

Despite this necessary predictability and compliance in the definition and application of regulations by the regulator, regulation needs to be adequate enough when acting in a context requiring continuous improvement (Gazzi et al., 2009). Moreover, in addition to a certain degree of flexibility in the definition of the regulations, the public official is allowed to act with discretion in certain situations, which for Blanchet (2016, p. 43) is a phenomenon driven by the combination of factors defined by the ‘system of standards’ and ‘dynamics of the real world’. Although what is expected of a public agent is an objective action, it is known that absolute objectivity is unreal, since, in addition to the formal interpretation of the norm, it is necessary that the concrete situation be considered (Blanchet, 2016), including in proposing regulatory improvements.

In his research, Ferreira (2021) was willing to observe the effect that changes in the regulatory framework of public service tariffs have on the economic performance of investments in fixed assets. Their findings reinforced the changing condition of the economic regulation of the electric power distribution segment and its impacts on investment decision-making processes. From the mapping and consolidation of the changes in the selected regulations, it was possible to see that throughout the tariff cycle analyzed many procedures and methodologies were changed, so that not all the rules in force at the beginning of the cycle (or at the time of the investment decision) were maintained until their end. In this sense, considering that investment works usually take - long planning and execution time, it is common for dealers to decide the investment portfolio in fixed assets long before the Tariff Review that will approve their remuneration. This corroborates the perception that the choice of an investment, even if based on the criteria and assumptions of the regulation in force at the time of the decision-making, does not ensure that the projected return will materialize later, in the Tariff Review process. This fact increases the level of uncertainty and risk for the investor who evaluates to put his capital in the electricity distribution segment, and even for the investor who has already taken over the provision of the public service, and may affect the attractiveness of the sector.
In the result of simulation of the valuation of the sample assets, carried out in the same way as is done in the preparation of the Evaluation Report of the Tariff Review processes, it was already possible to identify divergences in the values found (Ferreira, 2021). The regulatory determinations in force at each moment analyzed present different instructions for the elaboration of the valuation, culminating in different regulatory values for the Regulatory Compensation Base. Similarly, with the identification of the change in the methodology and calculation of the rate of return on capital (which led to different WACC values for each point in time), the difference between the results found for the Capital Remuneration component was marked. However, using the methodology of the Economic Management System - Gecon, the comparison of the Economic Results carried out in the survey pointed to a favorable result for the studied concessionaire. It was then found that the regulatory changes implemented by the regulator, while not reflecting what the concessionaire's projections at the time of the valuation would be, had positive effects on the Economic Result of fixed assets (Ferreira, 2021).

Although the results found in the survey\textsuperscript{11} (considering the data sample and the selected period) suggest that changes in economic regulation were advantageous for the investor, this result does not indicate a common fact for all cycles and all types of investments. Given the importance of the public electricity distribution service, which is essential for the development of the country and for the preservation of social rights, it is necessary to reinforce that regulatory predictability and legal certainty remain important conditions for ensuring the attractiveness of the segment and the sustainability of the sector. As the concession scheme is currently the form adopted for the provision of the public service, it is essential that the State provides the investor with the conditions to invest his capital in an economically viable and interesting business, of which he is aware of the real risk involved.

In addition, this issue reinforces the need for dealers to consider participation in the public discussions proposed by the regulator as indispensable for business. In the event of the possibility of constant regulatory changes, as well as possible institutional disruptions (as seen in the past), the energy distribution segment agents must evaluate all proposals that bring about regulatory changes in an accurate and rigorous manner, analyzing the possible consequences that these changes may cause on the economic performance of the assets, as well as on the actual provision of the public service.

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\textsuperscript{11} It is important to note that the research developed by Ferreira (2021) presents limitations, highlighted in his own work, such as the fact that the sample used in the research - although representative both in the sense of the volume of assets, and in the variety of them - did not include all the investments made by the concessionaire, which makes the result found reflect the behavior of the regulatory changes only on the category of assets that make up the sample. Another example of limitation concerns a certain level of subjectivity when performing the simulation of the valuation of the 4th cycle of Tariff Review assets, starting from the reproduction of the Evaluation Report used in the 3rd cycle Review. It should also be noted that the assessment of the effects of the changes in pricing policies was made only on the capital remuneration component (CR), so that it would be interesting to observe these effects in addition to the return on assets. Its results, therefore, should be considered as a partial representation of the problem, within the presented situation. Complementary research on these topics could expand the understanding of the effects of changes in pricing policies on investments and would collaborate with studies on decision making in regulated environments.
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