

Electric power sector and social asymmetry

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ABSTRACT: The objective of this study is to examine in the theoretical field the potential and limitations of the connections between the public management of electric energy and social inequalities. This issue has sparked numerous debates that are relevant to examining the ability of public managers in the electricity sector to obtain results in the use of public resources with the purpose of reducing social inequalities. The methodology used in this investigation is an integrative theoretical review, based on a bibliographic and documentary survey. The study concluded that social inequalities are predominantly due to the political system, which, through sectors such as electricity, does not seek to promote social equality through this strategic development vector, electric energy.

KEYWORDS: Electricity. Asymmetry. Development.

I. INTRODUCTORY ASPECTS

The environment of public electricity management and the intricacies of social asymmetry have always aroused great interest from societies. The modern world consumes more electricity every day [17] and this input has always represented a strategic vector in promoting the development of regions and countries [14]. The public management of electric energy involves aspects linked to the territory and the demands of society, in order to also encompass decision-making relationships between political power, economic power and social power [14]. It is in this logic of reflection that we seek to provide an opportunity for an analysis between the role of this strategic input for society and a complex problem that is always present in the international debate, social asymmetry.

Access to electricity is directly connected to the development process experienced by a nation, hence its public policies; the distribution of electricity is one of the most relevant activities for modern life, being both a cause and a consequence of the development of societies [10]. The guarantee of social rights related to education, health, work, housing, leisure, security, social security, among others, as a basis for the materialization of a decent

life is intrinsically related to access to other public goods and services [4]. Among these public services created by the State in fulfillment of its role, the access to electricity considered an input for meeting the fundamental needs of the individual is included as indispensable for man today [4].

However, in addition to the basic conditions of access, electricity is a strategic element in promoting equality between people. The generation of jobs, the intermediation of basic services such as health, education and telecommunications, in addition to the possibility of investments, among other advantages in favor of social equality. Electricity comprises a public service provided, in most countries in the world, through a concession, and many people still do not have access to this input; which for many is something simple, is still a distant reality for many Brazilian citizens, especially in the suburbs, inland cities and rural areas [10].

In this perspective, this investigation aims to examine, in the theoretical field, the potential and limitations of the connections between public electricity management and social asymmetries. This theme has heated up discussions in various parts of the world, which have the role of reflecting on the mission and capacity of public managers in the electricity sector to obtain results in the use of public resources with the purpose of reducing social asymmetry. This article, in addition to its introductory aspects, is divided into four parts, namely: theoretical framework; methodological strategy; results and discussions on a theoretical basis; and final considerations.

II. THEORETICAL FRAMEWORK

This section addresses the theoretical foundation of this study and is supported by two categories that present important connections and reveal intricacies of analysis capable of guiding reflections and assisting in decision-making in the public sector. They are: public electricity management and social asymmetry.

The intricacies of the debate regarding public management have aroused numerous discussions that are relevant to the examination of the capacity of public managers to obtain results in

the use of applied public resources; among them, the influence of group ideologies that interfere with more decision-making power, through correlations of forces with numerous branches, such as electricity [7].

The environment for public electricity management is developed through public policies in the electricity sector, which generally aim to demonstrate that investments aim at economic growth and improving the population's living conditions. In this process, strategic aspects are verified, from the options of the sources of electric energy production to the reflexes of the use of this input in the different sectors of the economy of a nation [2]; [6].

The electricity sector is a social organization formed by systemic relationships that involve the process of transforming primary energy to its final use by type of consumer. These relationships are established between the components of the electricity sector, such as: generation, transmission and distribution. Electricity generation comprises the entire process of transforming a primary source of energy into electricity and represents a very significant part of the environmental, socioeconomic and cultural impacts of electrical energy systems [15]. Electricity produced at generation plants normally travels a long way to its place of use. This route involves transmission systems, which interconnect generation to load centers (in cases where distribution is not directly connected to transmission, sub transmission systems are used). Finally, distribution comprises the network that interconnects transmission (or sub transmission) to the points of final consumption [1].

Electric energy comprises the product of an adequate process of use of physical-chemical and electromagnetic properties of matter to enable the operation of equipment that supplies end-uses by society [15]. Thus, even as the authors emphasize, electrical energy is a secondary energy that can be acquired through primary energy sources transformed from converters. The most used primary energy conversions currently used are: thermal energy, which is found in fossil fuels and biomass through thermoelectric power plants; atomic energy from radioactive minerals from nuclear power plants; and water potential through hydroelectric plants [3].

Understanding the role of the electricity sector in socioeconomic development is directly related to the understanding of certain market categories and strategies practiced through public policies articulated from speeches that intend to demonstrate that investments aim at economic

growth and improving conditions of population's life. In this sense, the analysis of the dynamics of the electric energy sector initially starts from the understanding of the following categories: product; demand and investment. At a later stage, more specific categories are addressed to this analysis, such as the added value and energy intensity across sectors of economic activity.

The universe of understanding of the product, demand and investment categories represents a combined dynamic. The product comprises the total value of final goods and services that productive units choose to launch on the market for a given set of circumstances [16]. In the case of the electricity sector, the product would be electricity, a basic input for the improvement of several other essential factors. Demand, in turn, represents the quantity of a good or service that a consumer wants and is willing to purchase for a given price and at a given time. It is a measure of the willingness, subject to the purchasing power of individuals, companies and the government, as a whole, to acquire goods or services [11].

Investment, on the other hand, means the application of capital in means that lead to the growth of productive capacity, that is, in capital goods. It is a demand component and means an addition to the productive capacity of the economy in question [9]. The investment category is linked to productive capacity, which in turn corresponds to the total stock of assets capable of producing a flow of economically valued inputs.

In general, the dynamics of the energy sector are linked to the increase in consumption, production and investments, which, in turn, not only play a role in creating demand, but also in creating new productive capacity. Thus, when the investment is made, the productive capacity expands. The expansion of production capacity, in turn, allows for product expansion. Product growth induces an expansion of demand, which translates into an improvement in the population's living conditions, that is, into socioeconomic development. In this way, the electric sector of countries has, from public policies developed by governments, the objective of directing investments, based on available energy, economic and technological resources, for the efficient use of different energy sources, seeking to meet the demands of their respective countries in all their sectors.

Within each sector there are specificities not only in terms of energy demand, but also in terms of added value and energy intensity that can provide parameters for identifying groups of economic activities that support the country's

socioeconomic development. The participation and evolution of sectors in a country's economy can determine the level of its socioeconomic development [12]. The author highlights the existence of sectors that are intensive in energy and capital and not so intensive in labour; as well as recognizing the existence of less capital-intensive sectors, less intensive in the use of energy and great job generators.

In the analysis of these economic sectors, added value and energy intensity comprise strategic categories. The added value comprises the calculation that each branch of activity added to the value of the final product, at each stage of the production process [8]. The added value of the energy sector lists records of mineral extraction, utilities and petroleum refining and the manufacture of coke, a type of coal. Energy intensity, on the other hand, comprises the measurement of the relationship between energy demand and GDP. Unlike what was previously thought, energy consumption does not necessarily grow along with GDP due to measures that can be taken by countries in an attempt to reduce the intensive consumption profile and stabilize energy demand, hence the relevance of considering the category energy intensity in this analysis. Next, the issue of social asymmetries is addressed more specifically.

In contemporary society it is possible to clearly observe that people are different and these differences are based on the following aspects: material things, race, sex, culture and others, and in this logic, the most elementary aspects to verify that people are different are the elements: physical or social [21]. This panorama can be widely verified, since in each society these asymmetries exist, they take on different features because they are constituted by a set of economic, political and cultural elements specific to each one of them [21].

Social asymmetry refers to relational processes in society that have the capacity to limit or harm the status of a particular group, class or social circle [5]. Areas of social asymmetry include access to voting rights, freedom of expression and assembly, the extension of property rights and access to education, health, quality housing, travel, transportation, vacations and other social goods and services. Furthermore, asymmetry can be verified in the quality of life, occupation, job satisfaction and access to credit; thus, if these economic divisions harden, they can enable social asymmetry [5].

The definition of social asymmetry is linked to a phenomenon in which there is a differentiation between individuals in the context

of a given society, in order to place some people in structurally more advantageous conditions than others; in order to manifest itself in various aspects: culture, daily life, politics, geographic space and several others, but it is in the economic sphere its best known face, in which a large part of the population does not have enough income to enjoy the minimum conditions of life [13].

In general, social asymmetry has its origin in the unequal distribution of power, which presents historical disparities that are always up to date, that is, it is not linked to morality nor is it related to the strangeness of the different [18]. This theoretical category is rooted in obtaining profit and power determined by a project of a hierarchical society, which prioritizes the health of capital over the health of its people; this is to say that asymmetry depresses, imposes ethical-political suffering, limits the future and prevents the opening of horizons, access to education and health, fosters injustice, strengthens the individual and trivializes the harm caused to people and nature [18].

In short, despite being a complex, multivariate and unfinished concept, it is reasonable to say that social asymmetry is the structural difference in which it is observed that individuals are in more advantageous conditions than others, and in this logic, it represents a process observed within society's relationships, identified throughout the planet. This panorama is built from an unequal distribution of income, education, health, culture, jobs, transport and electricity. Electric power, in turn, in its social dimension, is constituted by close relationships of support and solidarity (for example, friendship, affinity, family, clan, neighbourhood, community, social movement) and reports the extent to which a range of values, norms and ways of life contribute to the health of all and are respected [19].

When a given society has its structure unequally arranged, certain people and social groups find themselves in structurally more favourable conditions than others, which is increased over time by the poor distribution of income. Within the scope of the electricity sector, the promotion of asymmetry is revealed, among other aspects, by the actions of companies in this sector. Countless leaders involved in the mobilization and formation of the Commission of Those Affected by the Brazilian Murta Dam, for example, claimed to have given up their activities due to fear that the threats and pressures imposed on them, in a veiled or explicit manner, by the company, result in actions that encompass the use of physical violence [22].

III. METHODOLOGICAL STRATEGY

The methodology used in this investigation is a theoretical review, based on a bibliographic and documentary survey carried out between March 20 and June 14, 2020. The main categories that provided guidelines for this survey were public electricity management, social asymmetry and the connections between these two categories.

The study opted for the so-called integrative review, which enables the combination of empirical and theoretical literature data that can be directed towards defining categories, identifying weaknesses in the areas of study, reviewing theoretical bases and examining given topic [20].

The methodological procedures were divided into three stages, namely: data collection, data processing and data analysis. In data collection, several sources were used that dealt with the theme of this study: books, scientific journals and specialized websites. In the treatment of data, an organization was carried out through columns where conceptual properties of the categories of public electricity management and social asymmetries were described. In the third and last stage, the conceptual properties were examined in order to identify connections between the intricacies of these categories, in order to verify the potential and limitations of using electricity as a vector for reducing social asymmetries in regions and countries.

IV. RESULTS AND THEORETICALLY BASED DISCUSSIONS

A more accurate understanding of the connections between public electricity management, through the electricity sector, and social asymmetries represents the possibility of contributing to an important issue for any nation, as the electricity input comprises a strategic vector for the development of regions and countries. It is known that electricity is not the only vector for generating socioeconomic development and that each country or region has different peculiarities in the structure of their economies. However, the advance in understanding the intricacies that involve the connections between public electricity management and social asymmetries represents a contribution to the decision-making process in the public sphere.

The role of the electricity sector in the face of social asymmetries is materialized insofar as it promotes fundamental changes in the structure of the state's economy, improving the population's standard of living. These changes are developed at

a time when it is identified which sectors of the economy and in what proportions, considering local specificities, should receive investments in electricity and how there will be greater social justice for the populations involved. The identification of articulation mechanisms that promote this social justice must be the first step in this process.

In general, the dynamics of the electric energy sector in the countries is linked to the increase in consumption, production and investments, which in turn, not only play a role in creating demand, but also in creating new productive capacity. Thus, when the investment is made, the productive capacity expands. The expansion of production capacity, in turn, allows for product expansion. Product growth induces an expansion of demand, which translates into an improvement in the population's living conditions, that is, into socioeconomic development.

The electric sector of a country has, in this logic of understanding, based on public policies developed by governments, the objective of directing investments, based on available energy, economic and technological resources, for the efficient use of different energy sources, seeking meet the demands of the country in all its sectors. This logic is in line with the considerations of [15], when they emphasize that the electricity sector is constituted in a social organization formed by systemic relationships established between the components of the electricity sector, such as: generation, transmission and distribution. And, in each of these stages, there are possibilities for building mechanisms to deal with social asymmetry.

In addition to the components of the electricity sector, there are sectors of economic activity, where each sector has specificities not only of energy demand, but of added value and energy intensity that can also provide parameters for the formulation of policies against social asymmetry. The participation and evolution of sectors in a country's economy can, therefore, interfere with its level of social asymmetry, that is, there are sectors that are intensive in electricity and capital and little intensive in labour; and vice versa; in this sense, the knowledge of these specificities can help in the construction of mechanisms that structurally reduce social asymmetries.

In short, the investigation inferred that the social asymmetries come from the political systems of the countries, which through sectors such as electricity, do not seek to benefit a condition of social equality through this strategic vector for improving the quality of life, electricity. This

finding collaborates with the statements of [18], when he states that social asymmetry is rooted in the achievement of profit and power determined by a project of a hierarchical society, which prioritizes the health of capital over the health of its population

It is observed that the electricity sector in several countries, especially those in development, implement immediate policies that favor short-term domestic production, disregarding the possibility of implementing strategic plans capable of reducing social asymmetry. This development logic still registers the actions of companies in the electricity sector in some countries, which during the licensing processes have promoted the maintenance and increase of social asymmetry. Several leaders, linked to the mobilization and constitution of the Commission of People Affected by the Murta Dam, in Brazil, declare that they have given up their activities due to fear that the threats and pressures imposed on them, in a veiled or explicit manner, by the company, cause reactions that include the use of physical violence [22].

Electric energy is a commodity of a social nature, but it is often disserved when it dispossesses thousands of hundreds of families to build large reservoirs. These people are forced to leave their history and values for minimal or even non-existent indemnities, in order to experience an even greater social asymmetry than what they already have. In many countries, such as Brazil, the possibilities of relying on promising alternative energy production chains are crushed by lobbyists for the construction of new, gigantic and impactful hydroelectric projects, which do nothing to reduce social asymmetry in the parents.

In some countries, there are communities that do not have electricity in their homes, located a few meters from long electricity transmission lines, as they are not a viable service for distributors. Definitely, there are problems of understanding and political willingness to understand the connections between the public management of electricity and social asymmetry.

The thesis defended in this study is that electricity is generated in many countries as a function of elites and the national interest represented by more economically developed regions. The improvement in the socioeconomic profile of the states, verified in 2010, represents only a small portion of the possibilities that could have been drawn together with the picture of social asymmetry. This dynamic, through a dialectical process, makes the benefiting of these elites, in the figure of large economic groups, imply, necessarily and contradictorily, in the strengthening of the

various groups affected by the impacts of this generation through a broad process of social asymmetry.

The energy asymmetry in everyday reality reveals an unequal distribution of this input. This asymmetry finds aspects: political, observed in the formal bases and legislative structure; economic, verified by the access to material bases that can provide an improvement in the quality of life; and social, represented by limited solidarity support connections. In relation to this last aspect, the words of [19] are added, when he emphasizes that the social aspect reports the extent to which a range of values, norms and ways of life contribute to the health of all and are accepted and respected. In this perspective, energy asymmetry composes a structure that separates individuals in different degrees, ie, equals and unequals.

V. FINAL CONSIDERATIONS

The purpose of this investigation was to examine in the theoretical field the potentials and limitations of the connections between public electricity management and social asymmetries. This issue is the focus of several discussions relevant to the capacity of public sector managers to achieve results in the use of public resources in benefit of reducing social asymmetries. Social asymmetries, as a structural difference, comprise a process observed within society's relations and which constitutes a severe obstacle to the development of society.

In this perspective, the study concluded that social asymmetries are mainly due to the political-economic system, which through sectors such as electricity, does not seek to promote social equality through this strategic development vector, electricity. The electricity sector in several countries, notably developing countries, promote short-term policies that aim at short-term gross domestic production, without effectively considering the possibility of implementing strategic plans capable of reducing social asymmetries through the numerous potentialities of the input. energy, such as investments in alternative energy production chains or expanding access to basic living conditions.

Future research could focus on building strategies, based on regional specificities, that could contribute to reducing these asymmetries and benefiting social equality among populations. Electric energy, as a development vector, needs to play its strategic role in the development process and new studies in this line may collaborate to build these strategies.

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