Chapter 79

Challenges to the sustained insertion of distributed photovoltaic generation in Brazil

10.56238/tfisdwv1-079

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ABSTRACT
The present workis on how to investigate challenges related to the energy transition process in Brazil, especially for photovoltaic solar energy (VF). The methodology aims to analyze, from multicriteria data processing models, the regulatory, statistical and socioeconomic context of brasileiro, as well as to characterize the advantages and long-term disadvantages of consumers and concessionaires. This abstract presents a brief description of the research proposal and its stages, where the main objective is to show that the process of energy transition to the FV source depends heavily on government incentives, in addition to the integrated action of several actors involved in the transition chain.

Keywords: Photovoltaic solar energy, Regulatory aspects, Energy transition.

1 INTRODUCTION

Historically, the Brazilian electricity sector is characterized by the direct practiceof the State, which plays a central role in the activitiesof generation, transmissionand distribution (SIMONE, 2019).

Berkhout et al. (2010), notes that the technological transition should emphasize the persistence of incremental changes, which require actors to match physical artifacts, natural resources, scientific elements and legislative artifacts. For a regime change to occur, it must be recognized as necessary, feasible and advantageous for a wide range of actors and institutions.

According to the model of the EnergyResearch Company (EPE), presented in the 10-year Energy Expansion Plan (PDE 2029), in 2029 there will be 1.3 million adoptions in Brazil of the Distributed Micro and Minigeneration system (MMGD), totaling 11.4 GW, which will require 50 billion in investment. This work aims to investigate the main challenges related to the energy transition process in Brazil, especially for photovoltaic solar energy (VF). Thus, with the aid of multicriteria analysis tools, it is intended to list factors limiting the sustained development of this technology using a technical and socioeconomic approach.

2 METHODS

It is necessary to analyze, from multicriteria data processing methods, the Brazilian technical and socioeconomic context and the impacts of tariff regulation on the national development of solar energy VF. Initially, a survey of costs and remuneration of energy distributors will be carried out, based on the Brazilian tariff model. Itis a spira to evaluate whether the current model together with the current

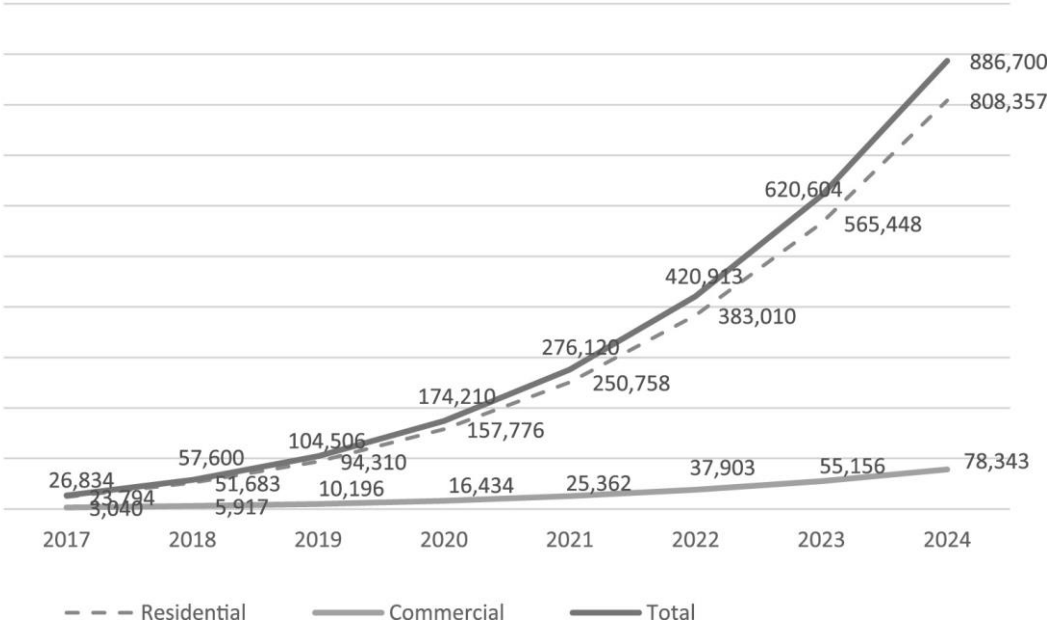
compensation system and possible scenarios suggested by the National Electric Energy Agency (ANEEL) will bring long-term benefits to consumers and concessionaires. Finally, from the holistic perspective of these data, considering the actors involved in the energy transition chain as well as the results of the multicriteria analysis, the treatment and dissemination of the results will be carried out.

3 RESULTS OBTAINED OR EXPECTED

ANEEL estimates for distributed generation show that the number of photovoltaic systems installed by the year 2024 will be approximately 886,000 units (Figure 1).

Taking Cartens and Cunha (2019) as a reference, which, from a multilevel perspective (MLP), challenges and *opportunities* for the growth of solar energy, this work aims to go a little further, in order to show possible impacts for distributors andconsumors considering the national regulatory, technical and socioeconomic scenario.

Figure1 - Estimated growth of fv energy by 2024. Source: ANEEL, 2017.



It is expected to verify that the transition of Brazil's current energy system depends heavily on incentives and governanceinitiatives, and that the transition to renewable energies should consider the potential not only technological, but also social.

4 FINAL CONSIDERATIONS

This summary is part of an early-stage research proposal. Further more, the analysisand in-depth research of bibliographic references is still necessary. Inthis way , the issue that has proved most evident is that the modernization of the tariff model is one of thegreatest challenge to the sustained development of solar energy VF in the country.

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