[THE GROWTH OF DISTRIBUTED GENERATION AND ENERGY INEQUALITY IN BRAZIL FROM 2013 TO 2022]

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# Overview

Energy transition is a crucial path to building a sustainable future in environmental, social, and economic terms. However, recent evidence alerts that policies adopted by several countries in the global north have caused energy inequality in the short term, mainly because environmental motivations focused on advancing energy produced by sustainable sources, but without considering that pre-existing socio-economic structures can reproduce and increase energy inequality from these policies – an evident conflict between SDG-7 and SDG-10. The overall objective of this study is to analyze the evolution of Microgeneration and Distributed Minigeneration (MMGD) usage to complement public energy sources with the aim of reducing energy costs, emphasizing the role of MMGD Law 14.300.

**Methods**

We used a mix of descriptive analysis of data, indicators and bibliography to achieve the objectives of this study. First, the main characteristics of the law are first presented, highlighting its objectives and benefits for the energy transition plan. Next, a descriptive analysis of MMGD usage data is carried out, emphasizing temporal evolution, primary consumers, and geographical distribution. Additionally, using the GINI index, the level of inequality between municipalities and states in terms of installed capacity and level of financial investment in MMGD is calculated to emphasize the role of existing inequalities in MMGD adoption and how Law 14.300 may exacerbate the current situation, even as it accelerates the energy transition to renewable sources, causing a potential contradiction between SDG-7 and SDG-10. Finally, the study discusses the experience of countries in the global north to identify best practices that can be applied to implement energy transition policies in Brazil and Latin America.

# Results

The result of this study shows how this legislative measure has generated a remarkable growth in the installation and utilization of renewable energy in the country, mainly from photovoltaic solar sources (about 99% in 2022) for residential use (about 44% in 2022) and commercial use (about 24% in 2022). It was also found that only four states (Minas Gerais, São Paulo, Rio Grande do Sul, and Paraná) hold approximately 51.2% of the installed MMGD capacity in Brazil. This heterogeneity is also evident at the municipal level, where the cities of Florianópolis and Brasília, despite not being among the states with the highest installed capacity, have the highest installed capacity. This regional inequality is confirmed by the calculated GINI index, showing a significant increase in financial investment inequality and installed capacity throughout the period at the state, regional, and national levels. It is worth noting that from 2017 to 2022, this increase was more pronounced in the Northeastern states.

**Conclusions**

This study concludes by discussing, based on the analyzed data and international literature, how the combination of high socio-economic inequality, high installation costs, and the predominance of the private sector in the supply of solar and wind energy creates a conducive environment to accentuate and perpetuate inequalities, threatening to generate a setback in development, as a significant portion of the population lacks access to these energy sources and, consequently, is excluded from the benefits provided by MMGD Law 14.300.