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A brief overview of renewable energy generation in Sergipe.

Brief overview of renewable generation in Sergipe

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SUMMARY

This work presents a brief energy overview of the state of Sergipe, through qualitative research of a bibliographic and documentary nature, referencing public companies and clean energy associations. Its objective is to disseminate scientific knowledge regarding the growth and development of clean energy sources in the state of Sergipe.

Keywords: Renewable Energy; Energy Matrix; Sustainable Development.

ABSTRACT

This paper presents a brief energy overview of the state of Sergipe, through qualitative research of a bibliographic and documentary nature, with references from public companies and clean energy associations. Its objective is to disseminate scientific knowledge regarding the growth and development of clean energy sources in the state of Sergipe.

Keywords: Renewable Energies; Energy Matrix; Sustainable Development.

1. INTRODUCTION

The energy matrix is a determining factor for economic resilience and sustainability. environmental. In Sergipe, a process of transition from a historical dependence on Xingó hydroelectric plant for a more diversified and sustainable energy matrix (ANEEL, 2025). In this way, Sustainability, which encompasses economic, environmental, and social pillars, is enhanced together. with planning and development using clean and renewable energy sources (EPE, 2025).

In recent years, Sergipe has stood out for its increased investments in energy sources. Clean energy sources, such as solar and wind power, are being driven by public policies and incentives for innovation. (SEDETEC, 2024).

Meanwhile, natural gas maintains a strategic role as a transitional energy source, ensuring stability to the system and enabling the expansion of renewables. Biomass, in turn, reinforces the Linked to the agro-industrial sector and contributes to the reduction of carbon emissions (EPE, 2025).

Thus, the diversification of Sergipe's energy matrix aligns with the agreements. international efforts to reduce carbon emissions, investments in clean energy, contributing paa the technological advancement of the state while simultaneously guaranteeing regional development sustainable (SEDETEC, 2024).

The present study in this article aims to provide a simplified overview of the situation. This study examines the energy potential of the state of Sergipe through bibliographic and documentary research, as well as a

Simplified national context.

This work aims to provide a national energy overview and Sergipe in terms of the share of renewable energy sources.

2. MATERIALS AND METHODS

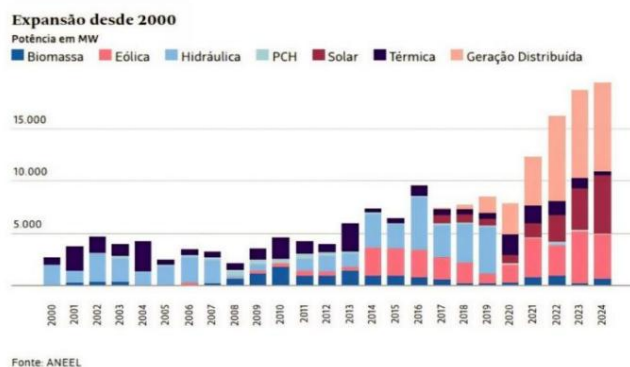
The energy transition in Sergipe has been gradually consolidating, with particular emphasis on... for natural gas, which still plays a central role in generation and ensures stability to the system (EPE, 2025). At the same time, the use of renewable sources is growing, especially solar energy, driven by public policies and the expansion of distributed generation in homes and businesses (SEDETEC, 2024). Wind energy also shows potential in the agreste and coastal areas, according to studies by the Energy Research Company (EPE, 2025), while biomass It strengthens integration with the agro-industrial sector, reducing environmental impacts (ANEEL, 2025). This set of actions demonstrates progress towards a more diversified and sustainable energy matrix. aligning economic development and environmental responsibility (EPE, 2025). The following are... Graphs were presented on the evolution of energy sources in Sergipe, in a general context and... average cost of each source.

Graph 1 – Evolution of installed power in Sergipe (2015–2025)



Source: SEDETEC (2024).

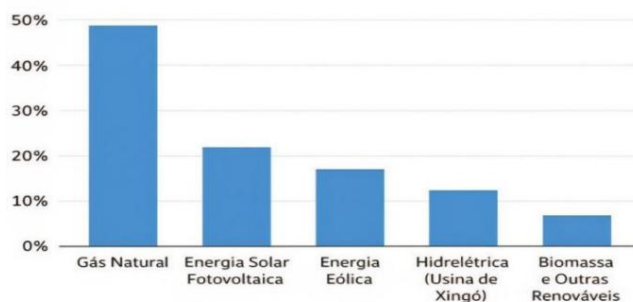
Graph 2 - Expansion of energy sources between 2000 and 2024.



Fonte: ANEEL

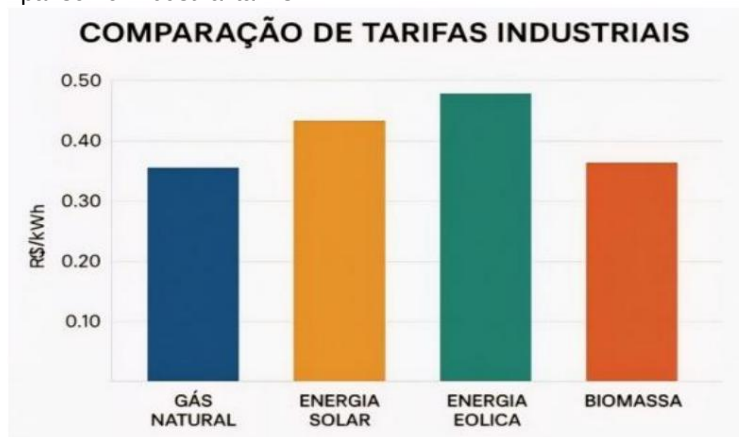
. Source: ANEEL - National Agency of Electric Energy. Resolutions and data of the electricity sector (2025)

Figure 3 - Projection of the energy matrix in 2030.



Source: SEDETEC (2024).

Chart 4 - Comparison of industrial tariffs.



Source: SEDETEC (2024).

3. RESULTS AND DISCUSSION

Looking at the graphs, one can see how solar power has gained strength over time. years, gaining greater visibility in the years 2021 to 2024 and expanding strongly. Conversely, Hydropower generation has been declining since 2019 and is expected to decrease even further. The forecast indicates... There is a growing trend towards renewable energy sources. Sergipe follows the national pattern, but Brazil, overall, is advancing more rapidly in its expansion of natural gas resources, still heavily dependent on natural gas. from clean sources, especially solar and wind. Despite the difference in costs, the projection until 2030 This shows that the energy matrix tends to become more sustainable and balanced.

FINAL CONSIDERATIONS

Sergipe's energy matrix demonstrates an effective energy transition based on balance. Strategic. Natural gas ensures the stability of supply and the operational security of the network. complementing the accelerated growth of clean energy sources. Strategic planning not only It guarantees sustainability, but also promotes the state's industrial competitiveness, according to... Balance between the tariffs charged by the main energy sources in Sergipe. By balancing Security and sustainability through diversification and innovation: Sergipe is consolidating itself as a...



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A regional model for energy transition in the country.

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