

Invest in Sergipe: **ENERGY TRANSITION**

ENERGY TRANSITION

Our mission is to promote a competitive and sustainable business environment, connecting opportunities to the state's potential.

The Sergipe Development Agency was founded in 2023. We work to strengthen Sergipe's integration into national and international markets, focusing on:

Investment Attraction: Identification of strategic opportunities in priority sectors.

Efficient Management: Asset and infrastructure project management through public-private partnerships (PPPs).

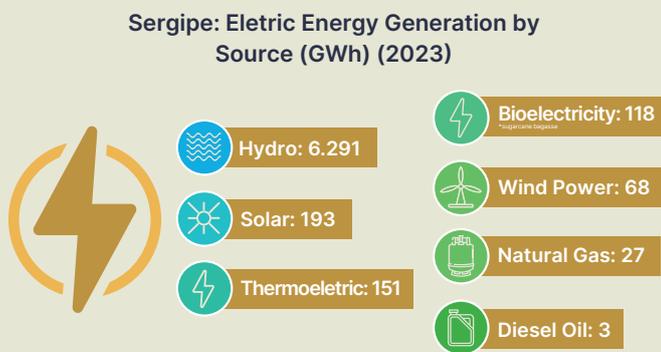
Sustainable Development: Integration of social and environmental responsibility and reduction of regional inequalities.

International Relations: Expansion of the state's presence in global forums and agreements

Our actions are guided by transparency, innovation, and integration with the public and private sectors. We aim, in a collaborative way, to contribute to the state's long-term planning, positioning Sergipe as an attractive destination for diversified and resilient businesses.

Towards a Sustainable Future

Under the radiant sun of Northeastern Brazil, Sergipe stands out as a beacon of the energy transition, harnessing its rich natural resources to illuminate the path toward a cleaner and more sustainable future, positioning itself as a strategic hub in Brazil's journey toward renewable energy sources.



Source: National Energy Balance (2023)

Sergipe's Energy Matrix

The State of Sergipe has a predominantly renewable energy matrix, a characteristic that strategically positions it in the context of Brazil's national energy transition.

In 2023, the state recorded a total generation of 6,853 gigawatt-hours (GWh), demonstrating its significant energy production capacity.

- **Predominantly renewable energy matrix (about 98% of the total)**
- **Low dependence on fossil fuels**
- **Potential for expansion of solar and wind energy sources**

This energy matrix configuration offers significant competitive advantages for investors:

- **Guarantee of clean and renewable energy supply, essential for companies committed to ESG practices**
- **Expansion potential in modern renewable energies**
- **A diversified base that ensures stability in energy supply**

On the banks of the São Francisco River lies the Xingó Hydroelectric Plant, responsible for supplying 30% of all energy in the Northeast region. The city of Barra dos Coqueiros is home to the largest natural gas-fired thermoelectric plant in Latin America – the Porto de Sergipe Thermoelectric Plant.

Considering the energy transition, Sergipe has the natural conditions to produce green hydrogen and ammonia on a global scale at an affordable price, estimated between €25 and €30 per MWh, with a supply of renewable and carbon-free energy, based on hydroelectric power combined with wind and solar energy.



Incidence of the Tax on the Circulation of Goods and Services

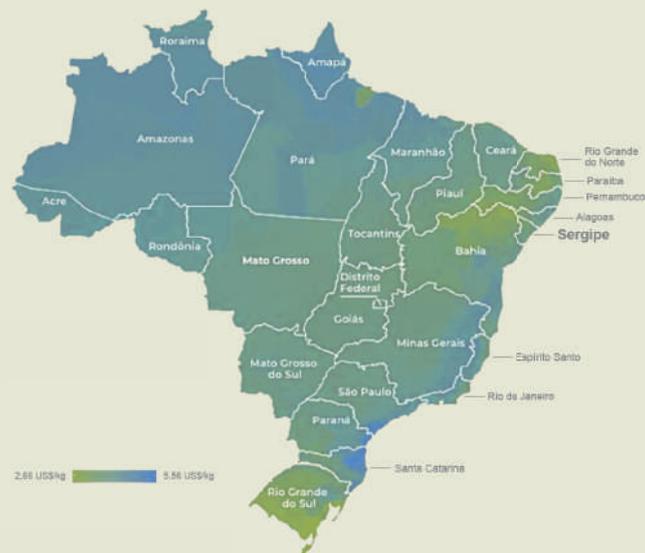
Sergipe has the second-lowest incidence of the Tax on the Circulation of Goods and Services (ICMS) in the Brazilian Northeast.

ICMS Incidence on the Energy Fare (%) (2023)



Fonte: Agência Nacional de Energia Elétrica (ANEEL)

Levelized Cost of Hybrid Green Hydrogen (Solar and Wind) in Sergipe by 2030: Competitiveness and Potential



Sergipe stands out as a promising location for green hydrogen production, with an estimated average levelized cost (LCOH) of US\$ 2.66 per kg of H₂ in the Porto de Sergipe region and in the municipality of Canindé do São Francisco by 2030.

This competitiveness is driven by the abundance of natural resources, such as fresh water, high solar incidence, favorable wind frequency, and access to the power grid.

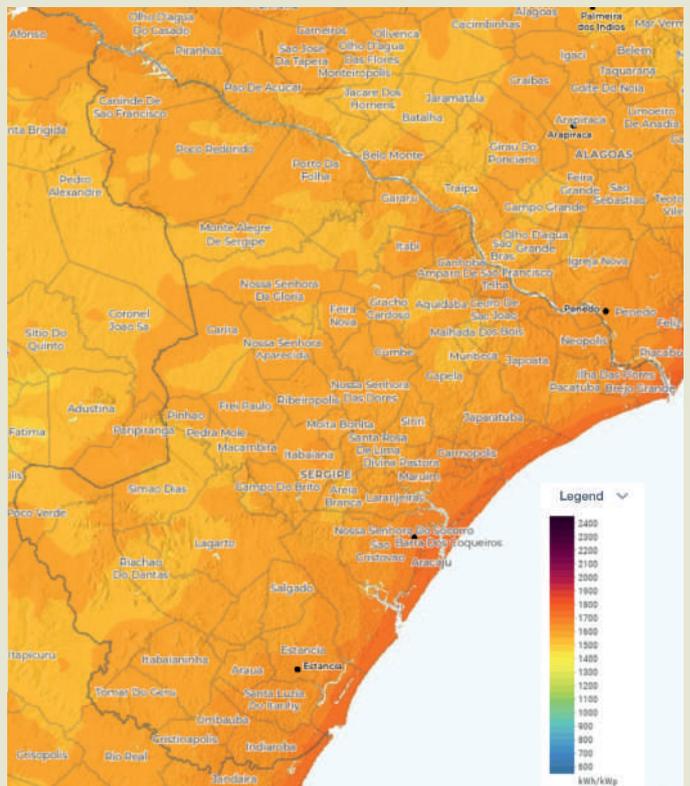
Compared to other regions of Brazil, Sergipe presents one of the lowest projected costs for green hydrogen production. This advantage, combined with its renewable resource potential, positions the state as a strategic hub for the development of this industry in the country.

We are well positioned to become an important producer and exporter of green hydrogen, contributing to the diversification of Brazil's energy matrix and the construction of a more sustainable future.

Harnessing the Power of the Sun

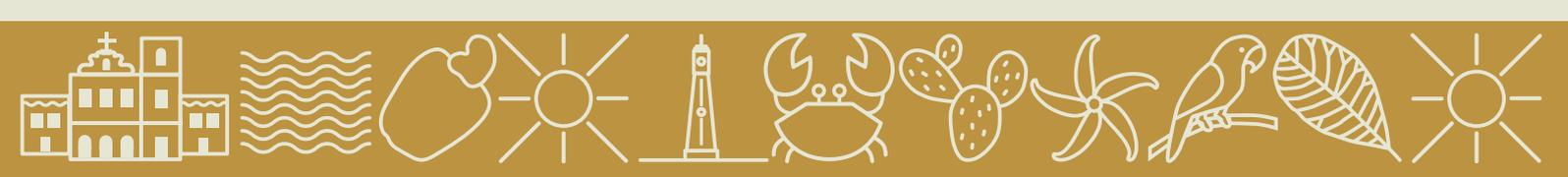
Sergipe has exceptional solar radiation, with its coastline presenting some of the highest levels in the country.

This natural advantage creates an ideal environment for the rapid deployment of solar power plants. The state's clean energy supply, which already includes hydro, wind, and solar power, lays the foundation for the development of green hydrogen production, further solidifying Sergipe's role in the energy transition.



Strong Winds

① **Strong Wind Potential:** The coastal and inland regions of Sergipe have significant wind energy potential, with the top 10% of the



windiest areas showing energy fluxes ranging from 74 W/m² at 10 meters to an impressive 494 W/m² at 200 meters.

② **Wind Farm:** The state already has an operating wind farm, demonstrating its commitment to promoting renewable energy. Sergipe has significant potential for the installation of new wind farms and will be an important player in the country's wind power generation.

Future Expansion: With its strategic location, Sergipe is well positioned to expand its wind energy capacity, contributing to both state and national renewable energy goals.



Wind farm in the city of Barra dos Coqueiros

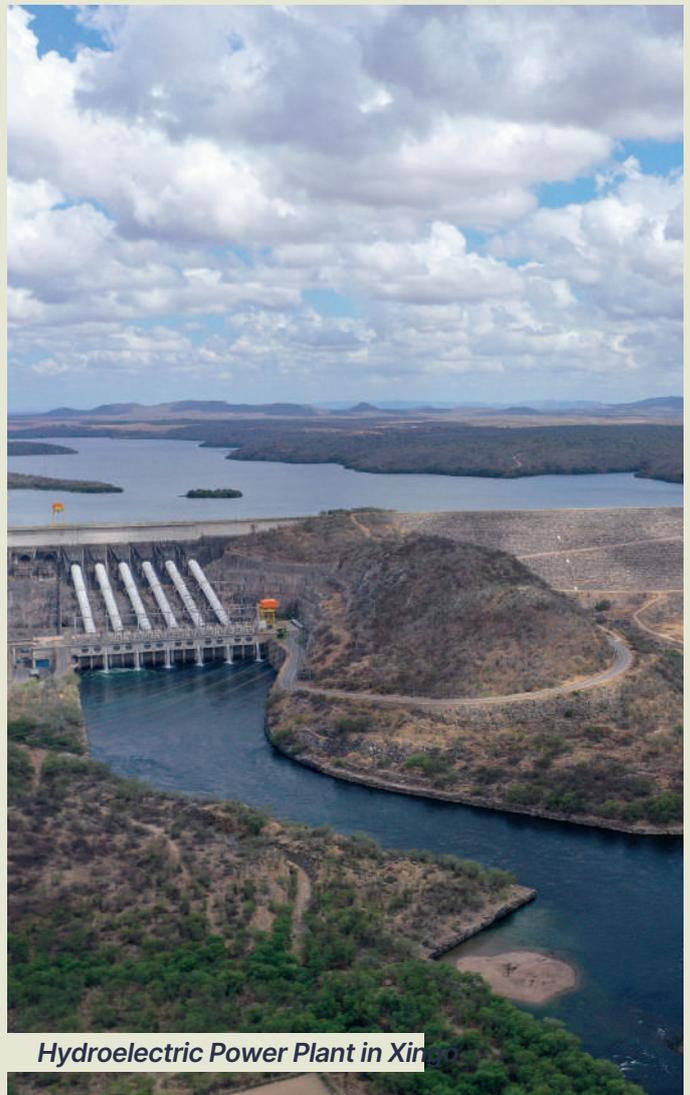
Diversity of Biofuels
Sergipe produces sugarcane ethanol but also has the potential to produce biofuels from other raw materials, including cassava, sunflower, coconut, jatropha, sorghum, and peanuts. This diversity ensures a robust and adaptable biofuels industry in Sergipe.

Sustainable Production: The state's focus on biofuel production is aligned with its broader energy transition goals, as these renewable fuels can help reduce greenhouse gas emissions and contribute to a more sustainable energy matrix.

Xingó Hydroelectric Plant: Sergipe is home to the plant responsible for generating renewable energy for the state. With a nominal capacity of 527,000 kW and an installed capacity of 3,162 MW, Xingó plays a crucial role in the state's energy matrix, supplying clean and renewable power.

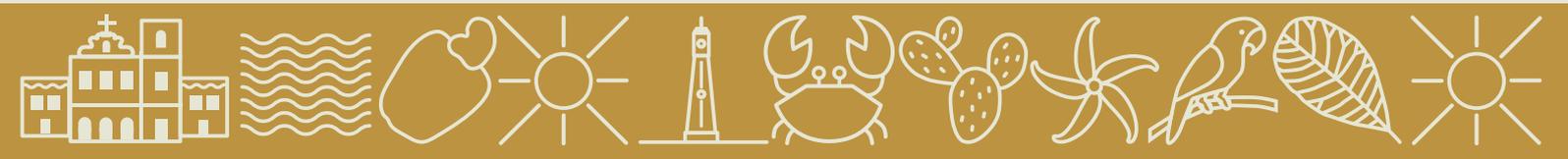
Opportunities: In addition to the Xingó plant, Sergipe has an average annual flow of 16.58 m³/s and an energy potential of 1,452,408 kWh/year, indicating important untapped hydropower resources that can be developed to support the state's energy transition.

Sustainable Energy: As a clean and renewable energy source, hydropower aligns with Sergipe's broader goals of decarbonizing its energy sector and transitioning to a more sustainable future.



Hydroelectric Power Plant in Xingó

Hydropower Potential





Wind farm in the city of Barra dos Coqueiros



Decarbonizing Sergipe: Turning Challenges into Opportunities

① Future Expansion:

Sergipe's total annual greenhouse gas (GHG) emissions amount to 10.2 MtCO₂e, with the energy, agriculture, and reforestation sectors being the main contributors.

② Emission Reduction Potential:

By leveraging its renewable energy resources and adopting sustainable practices, Sergipe has significant potential to reduce emissions across various sectors, contributing to broader decarbonization efforts in both the state and Brazil.

③ Commitment to Sustainability:

Sergipe's focus on renewable energy, biofuels, and sustainable land use highlights its commitment to a cleaner and more sustainable future, positioning the state as a leader in Brazil's energy transition.

Infrastructure for Development

Robust Substation Network:

Sergipe's energy infrastructure includes a network of substations, with important facilities located in Itabaiana, Jardim, Jardim II, Porto de Sergipe, Nossa Sra. do Socorro, Itabaianinha, and Xingó, providing the connectivity necessary for renewable energy projects.

Efficient Transportation:

The state's strategic location and direct transport routes to Europe and the Americas, combined with its port infrastructure, offer efficient logistics for exporting energy products and equipment, further enhancing Sergipe's appeal as an energy transition hub.

Supportive Policies:

The Export Processing Zone (ZPE) of Sergipe and low-interest credit lines provide favorable conditions for the development of renewable energy projects, which should drive the state's energy transition.

Power Substations in Sergipe

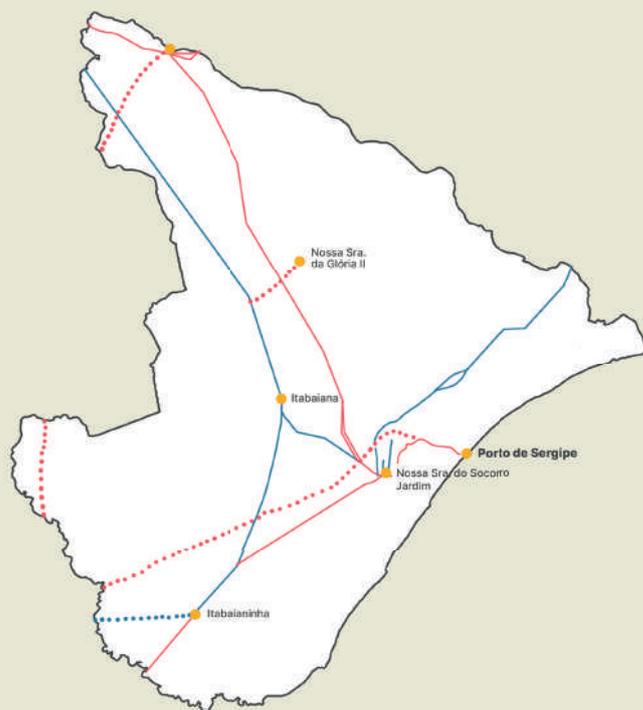
📍 **Itabaiana: 230 kV** 📍 **Jardim: 500 kV**

📍 **Jardim II: 230 kV**

📍 **Port of Sergipe (Porto de Sergipe): 500 kV**

📍 **Nossa Senhora do Socorro: 230 kV**

📍 **Itabaianinha: 230kV** 📍 **Xingó: 500kV**



Source: Ministry of Mines and Energy

Abundant Natural Resources

Solar Potential: The high solar irradiation in Sergipe, with daily photovoltaic energy production ranging between 4.19 and 4.78 kWh/kWp, positions the state as a prime location for large-scale solar energy development

Wind Energy The coastal and inland regions of the state have significant wind potential, with energy fluxes reaching 494 W/m² at a height of 200 meters, making Sergipe an attractive destination for wind energy projects.

Raw Materials for Biofuels: The agricultural diversity of Sergipe allows for the production of a wide range of biofuel inputs, including sugarcane, corn, cassava, coconut, and various oilseeds, contributing to the state's renewable energy matrix.

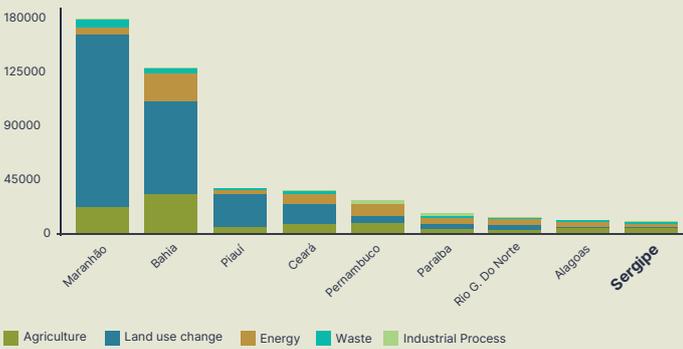


Decarbonizing Sergipe

Decarbonizing the economy is a crucial step in tackling climate change and ensuring a sustainable future. GHG emission data is essential to understand the environmental impact of economic activities in the region and to guide public policies and investments in sustainable practices.

Maranhão (173.4 million tCO₂e) and Bahia (135.0 million tCO₂e) lead emissions in the Northeast. These emissions are mainly driven by the sectors of Land Use Change and Forestry, reflecting deforestation and environmental degradation, and by Agriculture, a key sector for the regional economy. Sergipe presents the lowest volume of emissions (9.6 million tCO₂e).

GHG emissions in the Northeast (thousands tCO₂e) (2023)



Source: Climate Observatory. Greenhouse Gas Emissions and Removals Estimation System (SEEG).

Potential on Decarbonization

Sergipe presents a promising scenario for investments, especially in sectors that directly impact greenhouse gas (GHG) emissions.

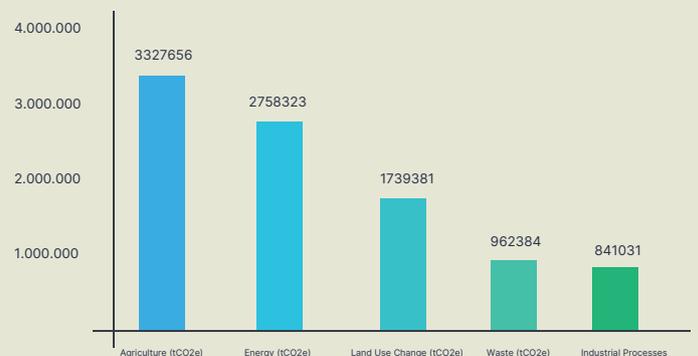
Total emissions: 9.6 million tCO₂e

Main sources:

- **Agriculture:** 3.3 million tCO₂e (34.6%)
- **Energy:** 2.7 million tCO₂e (28.6%)
- **Land Use Change:** 1.7 million tCO₂e (18.1%)
- **Waste:** 962 thousand tCO₂e (10.0%)
- **Industrial Processes:** 841 thousand tCO₂e (8.7%)

- Represents only 2.3% of total Northeast emissions
- State with the lowest emission impact in the region
- Shows a more balanced profile among emission sources
- Low deforestation rate (reflected in land-use change emissions)
- Lowest waste-related impact among all Northeastern states
- Cleaner energy matrix compared to other states
- Ranks 26th in the national emissions ranking
- Accounts for less than 0.5% of Brazil's total emissions
- Demonstrates a development profile with lower environmental impact

Sergipe GHG Emissions (thousands tCO₂e) 2023



Source: Climate Observatory. Greenhouse Gas Emissions and Removals Estimation System (SEEG).







SERGIPE
GOVERNO DO ESTADO

Governor

Fábio Cruz Mitidieri

Vice-Governor

José Macedo Sobral

State Secretary

Jorge Araújo Filho

CEO of Desenvolve-SE

Milton Arthur Vasconcelos de Andrade Cruz





DESENVOLVE-SE
AGÊNCIA SERGIPE DE DESENVOLVIMENTO



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GOVERNO DO ESTADO