

ENERGY TRANSITION

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

Founded in 2023, we work to strengthen Sergipe's integration into national and international markets, focusing on:

Attraction of Investments: Identifying strategic opportunities in priority sectors.

Efficient Management: Managing assets and infrastructure projects through public-private partnerships (PPPs).

Sustainable Development: Integrating social and environmental responsibility and reducing regional inequalities.

International Relations: Expanding 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, collaboratively, to contribute to the long-term planning of the state, positioning Sergipe as an attractive destination for diversified and resilient businesses.

Welcome to Sergipe: a state with a vocation for growth and an agency dedicated to transforming challenges into opportunities.

Embracing a sustainable future

Under the radiant sun of Brazil's Northeast, Sergipe stands out as a beacon of the energy transition, harnessing its rich natural resources to light the way for a cleaner and more sustainable future.

From the high solar potential that bathes its lands to the wind that drives its turbines and the fertility that generates biofuels, Sergipe positions itself as a strategic hub in Brazil's journey towards renewable energy sources.

Energy Matrix of Sergipe

The State of Sergipe has an energy matrix that is predominantly renewable, a feature that strategically positions it within the national energy transition landscape. In 2023, the state registered 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.**
- **Given Sergipe's climate and location, there is potential for the expansion of solar and wind energy sources.**

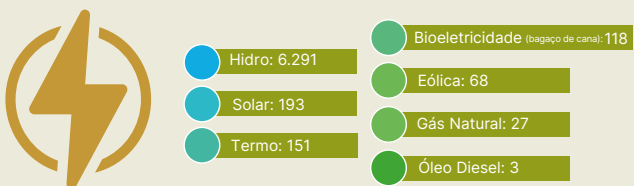
This configuration of Sergipe's energy matrix offers significant competitive advantages for investors: Guarantee of a supply of clean and renewable energy, essential for companies committed to ESG practices; potential for expansion in modern renewable energies; a diversified base that ensures stability in the energy supply.

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

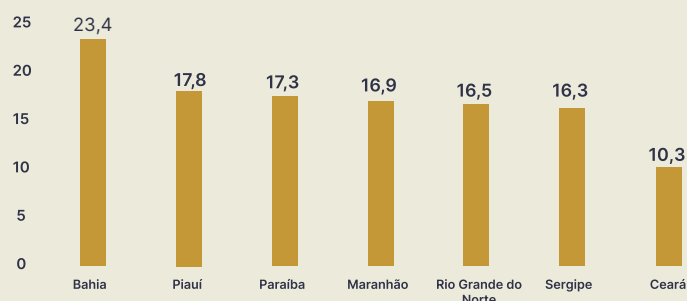
Considering the energy transition, Sergipe has the natural conditions to produce green hydrogen and ammonia on a global scale at an affordable price, estimated between €25 and €30 per MWh, with a supply of renewable and carbon-free energy, based on hydropower, combined with wind and solar energy.

Incidence of the tax on goods and services

Sergipe has the 2nd lowest incidence of Tax on Circulation of Goods and Services (ICMS) in the Brazilian Northeast.

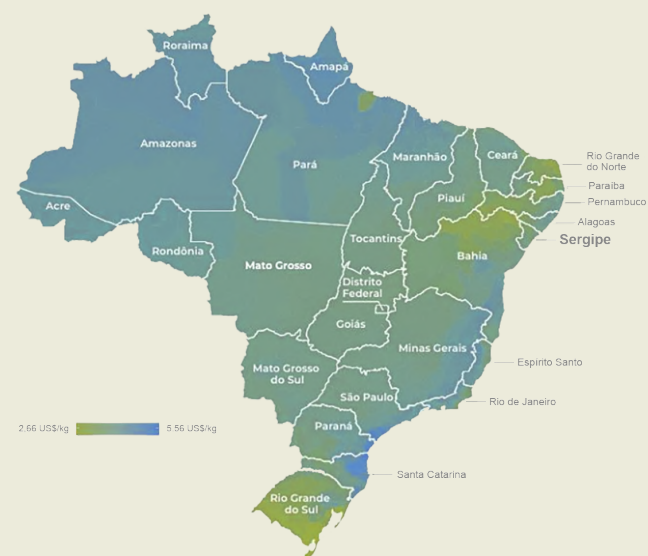


ICMS Incidence Ranking on Electricity Tariffs (2023)



Source: National Electric Energy Agency (ANEEL)

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



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

Compared to other regions in 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.

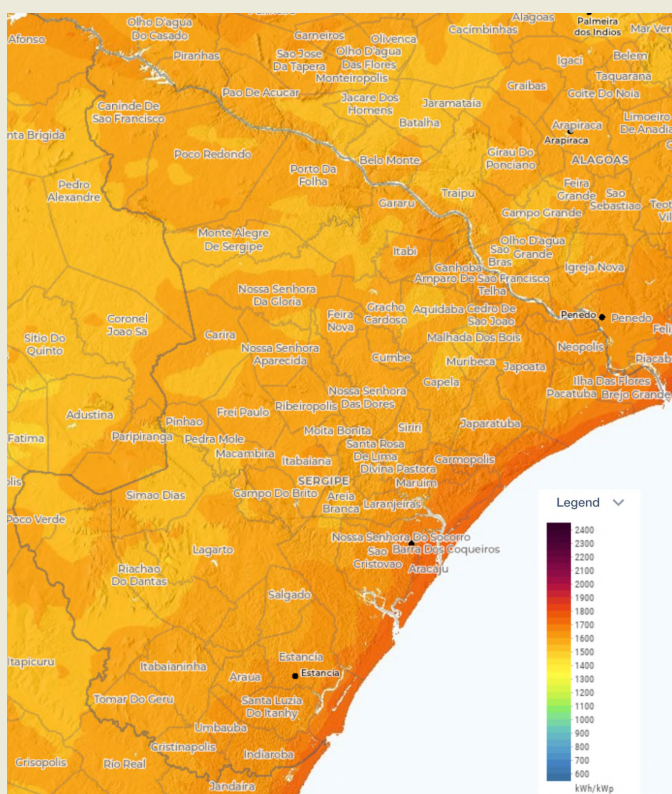
We are well-positioned to become a key producer

and exporter of green hydrogen, contributing to the diversification of the country's energy matrix and the building of a more sustainable future.

Harnessing the Power of the Sun

Sergipe has exceptional solar radiation, with its coastline featuring 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 hydroelectric, wind, and solar energy, lays the groundwork for the development of green hydrogen production, further solidifying Sergipe's role in the energy transition.



Source: Global Solar Atlas, World Bank

Strong Winds

① **Strong wind potencial:** The coastal and inland regions of Sergipe have significant wind energy potential, with the 10% windiest areas experiencing energy flows ranging from 74 W/m² at 10 meters to an impressive 494 W/m² at 200 meters in height.

② **Wind Farm:** The state already has an operational 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 energy generation.

③ Future Expansion: With a strategic location, Sergipe is well-positioned to expand its wind energy capacity, contributing to the state's and Brazil's overall renewable energy goals.

Diversity of biofuels

Sugarcane ethanol: In addition to sugarcane and corn, Sergipe has the potential to grow other biofuel feedstocks, including cassava, coconut, jatropha, miscanthus, palm oil, sorghum, sunflower and peanuts. This diversity ensures a robust and adaptable biofuel industry in Sergipe.

Diversity of raw material: In addition to sugarcane and corn, Sergipe has the potential to grow a variety of other biofuel feedstocks, including cassava, coconut, jatropha, miscanthus,

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 mix.

Hydroelectric potencial

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

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

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

Decarbonizing Sergipe: Turning Challenges into Opportunities

① Future Expansion: Sergipe's total annual greenhouse gas 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 holds significant potential to reduce emissions across multiple sectors, contributing to the broader decarbonization efforts of both the state and Brazil.

③ Commitment to Sustainability: Sergipe's focus on renewable energy, biofuels, and sustainable land use underscores its commitment to a cleaner, 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 Senhora do Socorro, Itabaianinha, and Xingó, providing the grid connectivity needed for renewable energy projects.

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

Support Policies: The Sergipe Export Processing Zone (ZPE) and low-interest credit lines provide favorable conditions for the development of renewable energy projects, which should boost the energy transition in Sergipe.

Energy substations in Sergipe

📍 **Itabaiana: 230 kV**

📍 **Jardim: 500 kV**

📍 **Jardim II: 230 kV**

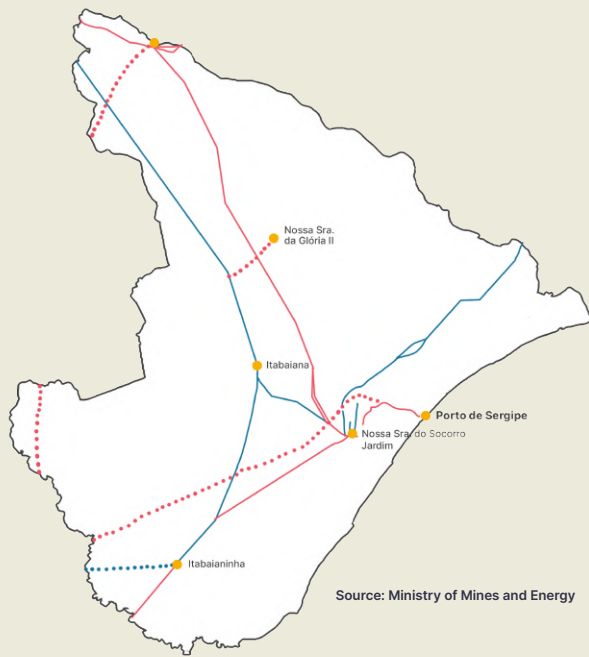
📍 **Port of Sergipe (Porto de Sergipe): 500 kV**

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

📍 **Itabaianinha: 230kV**

📍 **Xingó: 500kV**





Abundant natural resources

Solar Potential: Sergipe's high solar irradiation, with daily photovoltaic energy production ranging from 4.19 to 4.78 kWh/kWp, positions the state as a privileged location for the development of large-scale solar energy.

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

Raw materials for biofuels: Sergipe's diverse agricultural landscape allows for the production of a wide range of biofuel feedstocks, including sugarcane, corn, cassava, coconut, and various oilseeds, contributing to the state's renewable energy matrix.

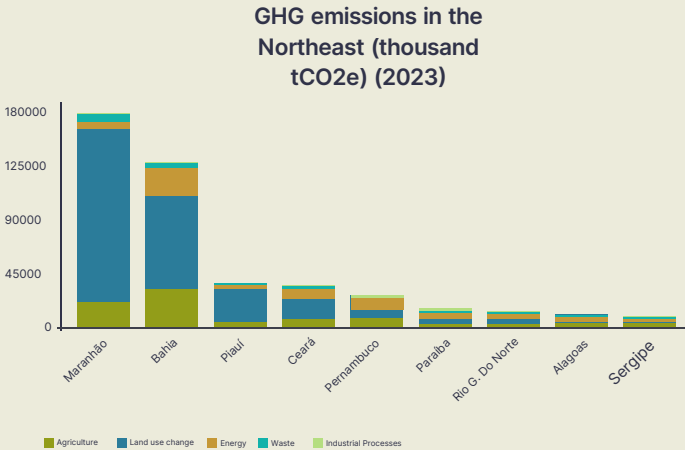
Decarbonizing Sergipe

Decarbonizing the economy is a crucial step toward tackling climate change and ensuring a sustainable future. Greenhouse gas (GHG) emissions data are essential for understanding the environmental impact of economic activities in the region and guiding 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 sectors such as Land Use Change and

Forestry, which reflect deforestation and environmental degradation, and Agriculture, which is fundamental to the regional economy

Sergipe has the lowest volume of emissions (9.6 million tCO₂e).



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

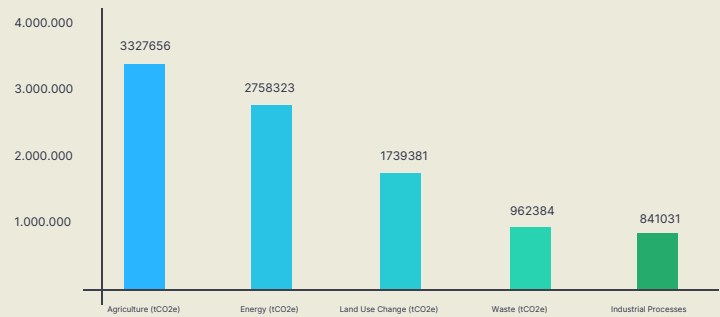
Decarbonizing sergipe

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%)**
- Sergipe represents only 2.3% of the total emissions in the Northeast.
 - It is the state with the lowest impact in terms of emissions in the region.
 - It has a more balanced profile among emission sources.
 - Low deforestation rate (reflected in emissions from land use change)
 - Lowest impact on waste among all the states in the Northeast
 - Cleaner energy matrix compared to other states
 - Sergipe ranks 26th in the national emissions ranking
 - Contributes less than 0.5% of Brazil's total emissions
 - Demonstrates a development profile with lower environmental impact.



Sergipe: Greenhouse Gas Emissions (GHG) (thousand tCO2e) (2023)



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





SERGIPE
GOVERNO DO ESTADO

DESENVOLVE-SE
AGÊNCIA SERGIPE DE DESENVOLVIMENTO