



# Brazil

## EIC Country Report

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### Executive summary

Much has happened in the Brazilian energy sector since the release of the first country report in 2018. Industry players have become more varied, stalled projects have resumed and new sectors are attracting investment. The country's pre-salt region is now firmly consolidated as the prime business source for the oil and gas supply chain, while onshore wind and solar projects have fully scaled up. Meanwhile, multi-billion-dollar proposals for offshore wind and green hydrogen projects across the country unlock new business opportunities.

Oil and gas remains a key sector in Brazil, responsible for approximately 13% of the country's GDP. Brazil has 11.8bn barrels of proven oil reserves and in 2020 produced approximately 2.9 million barrels per day (MMbbl/d), consolidating itself as Latin America's largest oil producer despite the downturn caused by the COVID-19 outbreak. Oil production from the pre-salt province in the Santos Basin, which began in earnest in 2010, now accounts for about 70% of Brazilian oil production and remains the leading energy source in the country (see Figure 1). Although the country has South America's third largest gas reserves at 12 trillion cubic feet (Tcf), Brazil still relies on natural gas imports from Bolivia as well as liquefied natural gas (LNG) to complement the national production, which in 2020 reached an average of



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127.3 million cubic metres per day. Development of pre-salt fields is expected to significantly increase natural gas output as new subsea gas pipelines processing plants become operational.

The divestment of several Petrobras assets across the up, mid and downstream sectors provided a large degree of diversification to the Brazilian oil and gas sector. IOCs have acquired major pre-salt assets (e.g. the Bacalhau field by Equinor) while independent players are now carrying out redevelopment projects at mature assets (e.g. the Carapeba cluster operated by Perenco). More recently, the RLAM refinery in Bahia – the country’s second largest - was sold to Acelen, a Mubadala company.

Brazil has the third largest power sector in the Americas, behind the US and Canada. The country has over 12,362 power generation facilities (excluding distributed generation) with a combined installed capacity of 182GW. Electricity generation in Brazil is marked by the widespread use of hydropower plants, which account for approximately 57% of the country’s installed capacity (but 12.6% of Brazil’s overall energy consumption – see Figure 5). Conventional thermal power plants – mainly fired by gas and oil – correspond to 24% of the country’s capacity and have a key complementary role in the Brazilian power generation matrix. Brazil has two nuclear power plants with a combined capacity of 1.99GW, and plans to develop additional facilities have been announced by the Bolsonaro administration.

The largest market for renewables in Latin America, Brazil has approximately 21GW of onshore wind capacity. The country has seen a rapid increase in the development of onshore wind farms over the last decade, thanks to frequent power tenders and public financing provided by the Brazilian Development Bank (BNDES). As of January 2022, the country has

just surpassed 13GW of solar photovoltaic installed capacity, of which more than 8GW is associated with distributed generation (which in Brazil refers to installations with a capacity below 5MWp). Offshore wind proposals have become increasingly frequent in recent months and now account for the majority of capital expenditure related to renewable projects.

Green hydrogen developments are also a growing trend, with major players such as Enefit and Fortescue announcing major projects in the country. As of March 2022, Brazil has 14 projects requiring a combined CAPEX upwards of US\$38 billion.

In 2021 Brazil ranked 26th in the World Energy Council’s Energy Trilemma Index (up from 28th in 2020 and 39th in 2019). Although the country scored well in energy sustainability and security, energy equity remains compromised due to high electricity tariffs, which in recent years have become common due to the dispatch of costlier gas-fired power plants to shore up supply as hydro power output dwindles.

Although Brazil was a leading contributor to the objectives agreed during the 2015 UN Climate Change Conference (COP21) – ratifying the Paris Agreement in September 2016 – the country has shown mixed signals when it comes to assuring the international community of its commitment to mitigating climate change. Its latest pledge calls for a reduction of 50% of GHG emissions by 2030 - up from the previous 43% goal - using 2005 emissions as a reference. However, Brazil’s new goal lacks significance: the previous target considered 2.1 billion tonnes of CO2 emitted in 2005, whereas the reference for the current one has been revised to 2.4 billion tonnes. Both targets still lead to an emissions limit of 1.2 billion tonnes of CO2 by the end of the decade.



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