

Equatorial guinea energy storage for demand response

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1.1 A brief outline of your jurisdiction's natural gas sector, including a general description of: natural gas reserves; natural gas production including the extent to which production is associated or non-associated natural gas; import and export of natural gas, including liquefied natural gas ("LNG") liquefaction and export facilities, and/or receiving and re-gasification facilities ("LNG facilities"); natural gas pipeline transportation and distribution/transmission network; natural gas storage; and commodity sales and trading.

Equatorial Guinea has an estimated 4.91 trillion cubic feet of proven natural gas reserves. The production capacity of gas has increased significantly by 5.73%, yearly, from 6.2 million cubic metres in 2015, to 7.75 million cubic metres in 2018, and is expected to continue to increase as new developments and projects are executed.

Equatorial Guinea is one of the first African countries to successfully develop and implement gas monetisation initiatives. The country's Gas Mega Hub Project provides the foundation for large scale gas commercialisation and could position the country as a regional gas leader. The project designed to harness unexploited offshore domestic and regional gas resources includes the transportation of gas from local fields and other African countries like Cameroon and Nigeria to the onshore gas processing and liquefaction facilities at Punta Europa and onward sale to the global gas market.

In 2022, central African countries, of which Equatorial Guinea is one, signed an agreement to construct an oil and gas pipeline network and hub infrastructures that aim to connect the Central African Economic and Monetary Community (CEMAC) member nations. When completed, the project, which will include the construction of three gas pipelines measuring about 6,500 km (4,000 miles), storage depots and LNG terminals, will boost the energy capacity across the region.

Equatorial Guinea also has an LNG terminal in Bioko Island. Construction of the 3.7 mmta production facility with one train was completed in 2007. It is important to mention the Fortuna FLNG project, the proposed construction of an FLNG terminal on block EG-27 (formerly Block R), which could significantly increase gas production in Equatorial Guinea. This project has suffered significant delays occasioned by inability to secure appropriate financing.

Equatorial Guinea's energy requirements are currently being met by two main energy sources - hydrocarbon and hydropower, and interestingly, its combined capacity far exceeds current local requirements. Hydrocarbons account for about 61% of the total energy consumed in Equatorial Guinea.

Equatorial Guinea is divided into two geographical regions: the mainland; and several islands, among which is the island of Bioko where the capital of the country is located. The island of Bioko is powered by the turbo-gas

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plant located in Punta Europa (Malabo), with an installed capacity of 154.2 MW, which provides energy to the entire island of Bioko through a 66 kV and 33 kV network.

According to data from the Ministry of Industry and Energy, in 2016, the demand for energy on the Island of Bioko was 79 MW, while the demand on the main land region of the country was 65 MW. However, in each region, production stood at approximately 154.2 MW, well above demand.

Throughout Bioko Island, except for the small hydroelectric plants of Musola 1 and 2, which are currently inoperative, electricity is mostly produced from natural gas through the Turbo-Gas plant. In the continental region, on the other hand, all electricity production is from the Djibloho Hydroelectric Power Plant.

Besides these two major plants, there are several ongoing electricity production projects that include natural gas fuel (such as the transformation from fuel to gas at the Bata terminal plant stations) and hydroelectrical sources (such as the Sendje plant, which could increase capacity by 200 MW).

Even though the production capacity exceeds local demand, only about 66.7% of the population (as at 2020) have access to electricity and this can be attributed to inadequate or dilapidated infrastructure.

In 2021, its natural gas export was reported at 4,693.614 cub mmn, an increase from 2020, which was reported at 4,025.920 cub mmn. Its current natural gas export is reported at 6.686.728 (INEGE-2021) m mn.

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