Electricity generation ethiopia

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Energy in Ethiopia includes energy and electricity production, consumption, transport, exportation, and importation in the country of Ethiopia.

Ethiopia"s energy sector is crucial for its development, with wood being a primary energy source, leading to deforestation challenges. The country aims to address economic development and poverty by transitioning to alternative sources, particularly electricity.

The following table provides some of the most relevant energy sector numbers for Ethiopia, a developing country. The primary energy sector is by far the most important one in Ethiopia, with mainly wood used for cooking. That together with the population growth in Ethiopia results in issues like deforestation. Ethiopia aims at economic development and removal of poverty and to replace the use of wood by alternatives. This makes the secondary energy sector (with electricity) most relevant for these efforts. Almost all recent developments are taking place in the secondary energy sector, with the construction of mainly hydropower plants and power transmission lines being most visible.

Primary energy is produced through the consumption of natural resources, renewable and nonrenewable.

All imported primary energy sources are natural asphalt. That material is exclusively used for roads construction but is not used to produce primary energy (heat/enthalpy).

Nevertheless, the use of primary energy is also increasing. In part this is due to a more efficient use of agricultural wastes. Ethiopia has agricultural wastes "reserves" of 38 million tonnes per annum, but in 2011 only 6 million tonnes of them were used.[2][3] This changes now. Such wastes can be used in households or in industrial processes, for example in thermal processing.

Beyond the renewables, Ethiopia also has resources of nonrenewable primary energies (oil, natural gas, coal), but it does not exploit them. It also does not export them.

Ethiopia currently relies much on its reserves of wood for energy generation, see the table. Ethiopia in 2013 had 1,120 million tonnes of exploitable wood reserves.[2]

Ethiopia also has liquid and solid hydrocarbon reserves (fossil fuels): oil by 253 million tonnes of oil shales and more than 300 million tonnes of coal.[2] There are no plans in Ethiopia to exploit them and to use them for energy generation. The last time there were plans, in 2006, a 100 MW coal power plant (the Yayu coal power plant) with a nearby coal mine was under consideration. Due to severe environmental concerns all plans were stopped and cancelled in September 2006. The expected environmental destruction was considered to be way too severe.[4]

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While coal reserves in Ethiopia are estimated to be at 300 million tons nationally.[5] 2020/2021 production reached 500,000 tons. Additionally, the country spends $200 million annually to import 670,000 tons, mainly from South Africa. Cement, textile, marble and ceramic factories are among the largest users of coal.There are ongoing plans to improve the coal calorific value and to increase production, aiming at substituting this import with the locally mined product.[6]

Natural gas makes up the most exploitable form of hydrocarbon reserves: a total of 4.1 trillion cubic feet (1.2x1011 m3) of natural gas reserves were found in two gas field in Ethiopia"s Ogaden basin, the Calub and Hilala gas fields. All the gas will be exported to China, production wells are under construction in 2017. The two gas fields should be in production by 2019.[needs update] Initial plans are to pump out 4 billion m3 per year.[2][7]

The currently used biomass / biofuels for primary energy production in most cases do not need to be transported over more than local distances. This can be done by simple roads. The reason is simple: Ethiopia was (and still is to some extent) a subsistence economy, where the vast majority of goods is produced and consumed locally within a few kilometers around the home of people.

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