Addis ababa electricity generation

Addis ababa electricity generation

This page lists power stations in Ethiopia, both integrated with the national power grid but also isolated ones. Due to the quickly developing demand for electricity in Ethiopia, operational power plants are listed as well as those under construction and also proposed ones likely to be built within a number of years.

Due to favorable conditions in Ethiopia (water power, wind power, photovoltaics, geothermal energy) for power generation, the country avoids exploiting and importing fossil fuels as much as possible. As Ethiopia is a quickly developing country, the demand for electricity grows by 30% each year.[1] This results in a very dynamic situation with many power plants being planned simultaneously or being under construction.

The lists provide all power plants within the Ethiopian national power grid (Ethiopian InterConnected System (ICS)). In addition, listed are all ICS power plants under construction, under rehabilitation or in stand-by-mode. And finally it lists all ICS power plants in planning stage which are foreseen (or are given chances) to be going into the construction stage until 2025. All ICS power plants are administered by Ethiopian Electric Power (EEP), the state-owned enterprise for electricity production. The lists are up-to-date as of September 2017.

Provided is most often the nameplate capacity but not the effective capacity of the power plants. Most lists also provide the annual capacity factor for the power plants, which are the actual numbers for the Ethiopian fiscal year 2016/2017 (ended in July 2017). For construction projects or planned power plants, the expected capacity factor is given in brackets. With the installed capacity known and the capacity factor given, one could do the math (not done on this page) and derive the actual (or planned) annual energy production (in GWh).

The lists arrived from a survey of newspapers, World Bank documents and reports, including the EEP itself.[3] The main documents for the power plants in planning stage on this page came from the Ethiopian Power System Expansion Master Plan Study, EEP 2014 and from the Ethiopian Geothermal Power System Master Plan, JICA 2015.[5]

Run-of-river schemes (without reservoir) totally depend on the flow of the river, which might be low in times of drought. Sometimes a run-of-river hydropower plant sits behind another hydropower plant in a cascade, so that their operation does not depend on the river but on the upstream size of the reservoir feeding the upstream hydropower plant. Such a scheme exists in the several cases (see Remarks). This makes more efficient use of the existing water supply.

According to The Wind Power, the number of wind parks in operation (July 2017) is at three.[23] All these wind parks deliver power to the national grid, they are ICS power stations.

Ayisha I (120 MWe), Ayisha II (120 MWe) and Ayisha III (60 MWe) are bundled in one concession. This

means, that all three will be under construction more or less simultaneously. The total installed capacity will be 300 MWe.

The total concession package agreed on between the Ethiopian government and the project stakeholders allows for the development of 1020 MW of geothermal energy at the respective sites.[30]

Energy generation from solar energy in Ethiopia is limited to photovoltaic systems, only solar parks operating with flat panel solar cells will be built and operated. Ethiopia is specifying its solar parks with the ac-converted nominal power output MWac instead of the standard dc-based MWp. Ethiopia so avoids some confusion about the nominal power output.

No solar-thermal power plants are planned. The first large solar park is considered to be operational by 2019.[37][36] All solar parks will be operated by private owners equipped with a long-term power purchase agreement.

Bagasse is only available from October to May during and after the harvesting of sugarcane. Therefore, the operation of the plants (and their cogeneration facilities) is limited to these months. Given such conditions, the capacity factor of the plants has low chances to be above 0.5.