

Potential Development and Distribution of Energy Resources in Ethiopia

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This paper presents the utilisation/development of energy resources in comparison to the potential energy resources in Ethiopia, the geographical/regional distribution of main power plants and the trend of electric energy consumption by different sectors in relation to its impacts on environmental, social, economical and political issues.

Ethiopia is a country of 80 million people and among the least developed countries with its per-capita income less than US\$896. Less than 20% of the population uses electricity and per-capita electric consumption is only 7% of the Sub-Saharan average. Even if different feasible energy resources exist in the country, it has been recognized that economic progress of Ethiopia will depend principally on the development of the hydropower resources.

Ethiopia has about 122 BMC total mean annual water flow from its 12 river basins with estimated exploitable hydropower potential of 143792 GWh per year. During the past 5 years (from 2005 upto 2010), the annual electric energy production has increased by more than 50%, i.e. from 2587 GWh to 3981 GWh. About 89% of the current electric energy production is from hydro power plants. The remaining 10% is from diesel plants while about 1% is from a geothermal power plant. The expansion plan upto 2015 increases the portion of hydro sources to nearly 100%. The industrial sector consumes about 37% while the domestic consumption is about 36% of the produced energy. The geographical/regional distribution of the hydropower plants developed so far is 77% in Oromia, 13% in Amhara and 10% in Tigray regional states. Although hydro power generation is economically very feasible, it is not risk free due to its vulnerability to natural hazards and its social and environmental impacts. Currently the development of large scale power plants on cross-regional and cross-country rivers is attracting the attention of environmentalists and politicians due to their social, environmental and political consequences. These issues should be considered carefully in order to increase the fair distribution of energy which in turn leads to sustainable development.

Keywords: Ethiopia; Electric energy; Hydro power; Energy distribution; River basin; Energy consumption; sustainable development