Modelling of Future Energy Demand for Tanzania

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Abstract

This paper present modelling of long-term energy demand forecast in the main economic sectors of Tanzania. The forecast of energy demand for all economic sectors is analyzed by using the Model for Analysis of Energy Demand (MAED) for a study period from 2010-2040. In the study three scenarios namely business as usual (BAU), low economic consumption (LEC) and high economic consumption scenario (HEC) were formulated to simulate possible future long-term energy demand based on socio-economic and technological development with the base year of 2010. Results from all scenario suggests an increased energy demand in consuming sectors with biomass being a dominant energy form in service and household sectors in a study period. Predicted energy demand is projected to increase at a growth rate of 4.1% and reach 74 MTOE in 2040 under BAU scenario. The growth rates for LEC and HEC are projected at 3.5% and 5.1% reaching 62 MTOE and 91 MTOE in 2040 respectively. Electricity demand increases at a rate of 8.5% to reach 4236 kTOE in 2040 under BAU scenario while electricity demand under LEC and HEC increases to 3693 kTOE and 5534 kTOE in 2040 respectively. Sectrorial predicted demand results under both scenarios determines high demand of biomass for service and household sectors with decreasing demand of biomass in industry sector. Transport sectors predicted energy demand pattern suggests an increased demand in passenger transport than freight transport in both scenarios. Final energy demand per capita in both scenario show an increased trend with lower growth in LEC scenario while there is a decrease in energy intensity throughout study period. Key Words: MAED, energy demand, energy demand forecasting, energy demand modelling