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Prediction of the future energy mix for Tanzania

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Energy is fundamental requirement in economic growth and improving the quality of human live. Finding effective ways of producing safe, reliable and affordable energy services is a fundamental requirement to the policy makers responsible in promoting sustainable development. In Tanzania, the majority of the population depends on biofuel, the minorities who have access to electricity are traditionally using hydropower. The vast energy resources remain unused and although natural gas has been added to the energy mix, however hydropower faced challenges of drought up the attention to the public on the power crisis in Tanzania. This dissertation develops an system model that will predict the future energy mix for Tanzania and using the Long Range Energy Alternative Planning (LEAP) software. The primary data were gatherd through questionnaires, Government Ministries, National Bureau of Statistics (NBS) and World Resource Institute (WRI). This model is scenario based tool designed to provide energy prediction and environmental loadings including description of the primary energy demand as well as the electricity sector focusing on the generation infrastructure. The results obtained were customerized into a robust expansion plan that will enable Tanzania to meet demand over the planning period from 2007 to 2037. It is shown that improved energy efficient and the use of renewable energy should provide sort term solution and besides safety concerns, the application of nuclear power in the future energy nix will provide a long term solution for the energy deficit in Tanzania with improved environmental effect.