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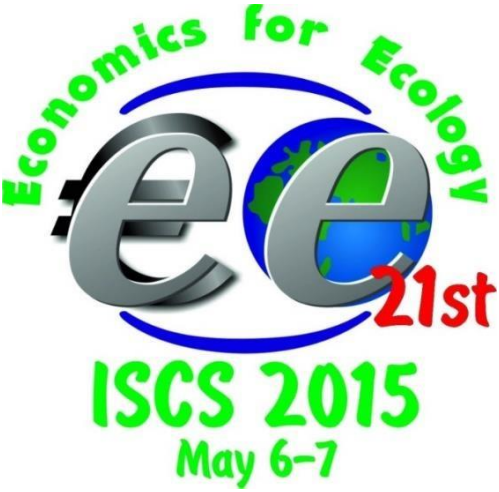

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FUTURE BUSINESS ENERGY MODELING AND SYSTEM DEVELOPMENT FOCUS ON EAST AFRICA REGION

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Africa has a landmass of just over 30.3 million km2, an area equivalent to the United States of America, Europe, Australia, Brazil, and Japan combined. As of 2004, Africa housed 885 million people (World Bank, 2005) in 53 countries of varied and diverse sizes, socio-cultural entities, and resource endowments, including fossil and renewable energy resources.

Most of these energy resources are yet to be exploited, which is a contributing factor in making the continent the lowest consumer of energy. Africa uses only one eleventh, one sixth, and one half of the energy used by a North American, a European, and a Latin American, respectively. There is an urgent need for substantial increases in energy consumption in Africa as a whole if Africa is to be competitive with other developing regions of the world.

Tanzania is gifted with diverse energy sources most of which are untapped, these include biomass, hydro, uranium, natural gas, coal, geothermal, solar and wind. The primary energy supply includes biomass (90%); petroleum products (8%); electricity (1.5%), and there maining (0.5%) is contributed by coal and other renewable energy sources. More than 80% of energy delivered from biomass is consumed in rural areas; heavy dependence on biomass as the main energy source contributes to deforestation, while the importation of oil costs about 25% to 35% of the nation's foreign currency earnings. To-date only about 18.4% of the country's population has gained access to electricity. Extending the National Grid too many parts of the country including rural areas is not financially and economically feasible.

Project Objectives

General: To develop energy models and setups with related activities for planning, managing effectively and optimizing energy production.

Specific:

- To identify and assess the capacity needs for effective development of models and setups for the region.

- To reinforce human and institutional capacity in scenarios building and modelling for energy and energy related sectors within the region.
- To advance knowledge networks and others collaborative links among specialist in energy modelling and setups building inside and outside the region.
- To categorize capacity needs for effective development of models and setups for the region.
- To harmonize national, sub-regional and regional plans, models and setups in the region.
- To develop and harmonize energy database useful for setups building and modelling
- To preserve track for development in scientific and technological advance in the energy.

East African countries must reform the market for energy services and establishment's institutions framework which facilitates investment expansion of service, efficient pricing mechanism and other financial incentives to enhance the development and utilization of indigenous and renewable energy source develop the energy development plans and management model system.

For the last decade, indicators that reflect changes in energy models have been used to monitor efficiency progress and identify market trends and efficiency improvement opportunities. Governments routinely produce documents displaying trends in these indicators, and cross-country comparisons of energy intensity abound in energy policy literature. Trends in energy intensity indicators increasingly serve not just as a monitoring tool, but as a basis for energy efficiency policies and regulations aimed at achieving greater energy conservation.

Before the mid-eighties, however, policy-makers were primarily concerned with the effect of shifting energy consumption on economic growth. As a result, energy policies were often coupled with economic policies that were typically implemented to boost a nation's economic performance. Although the maintenance of economic growth is still a priority for governments, the policy focus has shifted to capitalizing on the environmental benefits associated with more efficient energy use rather than just the economic benefits of conservation.

In other words, policy-makers are growing increasingly concerned with the physical rather than economic repercussions of energy use.

Accordingly, many believe that measuring changes in energy intensity can provide both international and national policy-makers with the information needed to design appropriate greenhouse gas mitigation strategies. Through the use of energy intensity indicators, governments may be able to identify which industries need to be targeted for mitigation strategies. Many also believe that such indicators can suggest the appropriateness of a particular strategy. As a result, energy intensity indicators (particularly cross-country comparisons of them) are increasingly being touted as a very useful and necessary instrument for climate change negotiations and policy-making (Eichhammer and Mannsbart 1997). CO_2 intensity indicators, which depict trends in the intensity of carbon use, are also gaining prominence as a potential policy-making tool. Indeed, a recent special issue of the journal *Energy Policy* (Special Issue, vol.25, nos. 7-9, June-July 1997) was devoted entirely to studies which examined the use of energy intensity (and their implications for energy efficiency) and carbon dioxide intensity indicators in the context of global climate change.

Perhaps, then, a deeper understanding of the trends shown by both types of model indicators might be gained by considering how economic energy model and system development strength has historically reacted to changes in physical energy intensity, and by accounting for all the major variables that could potentially affect the relationship between them.

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