

Tanzania Sustainability Backgrounder

Overview:

- Rising cost of power and electricity make affordability and accessibility to conventional sources unachievable for the majority of the population.
- IFC can strategically partner with the government of Tanzania to develop programs that catalyze private investment in renewable energy.
- Recommended options include (1) renewable energy programs using CDM rebates, (2) focus on improving the quality and efficiency of the electricity service provision and to establish a sustainable basis for energy access expansion, and (3) agricultural programs that include both climate change adaptation and mitigation measures.

- **Energy security:** Around 90% of Tanzania's energy needs are met by biomass, particularly wood fuel. Petroleum and electricity account for 9% of energy consumption, and coal and other sources for less than 1%. Tanzania has abundant but largely untapped renewable energy resources, including small hydro, wind, solar and various forms of biomass - which could be harnessed for power generation and access expansion. *Implication: Renewable energy presents an alternative to traditional wood fuel energy sources.*
- **Fuel subsidies:** High generation tariffs set by the country's single state-owned utility have resulted in end-user prices that are unaffordable to most Tanzanians. The government has placed a high priority on expanding energy access to power and , among other initiatives, it is exploring alternative energy and has a favorable tariff regime in place. *Implication: High energy prices limit access to conventional fuel, therefore exploring renewable alternatives in partnership with the government will present opportunities for IFC.*
- **Electricity supply:** Tanzania has one of the lowest electrification rates in Sub-Saharan Africa (SSA) – 11% compared to 20% SSA average. The access rates are particularly low in rural areas (below 2%), where most of the Tanzanian population lives. Over 80% of supply is generated thermally from imported coal and oil. Tanzania faces significant power shortages; the power system's security and reliability of supply are vulnerable. The country is facing rolling blackouts because of drought and high costs of power due to a need to resort to expensive emergency fossil-fuel fired generation to replace hydro-energy. *Implication: The unreliability and limited reach of the grid creates opportunities for power generation from renewable energy sources such as solar and wind.*

Electricity Production (Mainland) (gwh)

Source: Ministry of Finance and Economic Affairs, *Economic Survey, 2007.*

	2003	2004	2005	2006	2007
National Grid Hydro	2,554	2,010	1,778	1,453	2,512
National Grid Thermal	37	137	9	17	1
Non-Grid	114	523	1,271	2,045	1,619
Total Electricity Generated	2,705	2,670	3,058	3,515	4,132

- **Electricity market:** .Economic growth has increased demand for electricity faster than previously forecast. At the same time, energy infrastructure has deteriorated and been subject to vandalism. Moreover, recent projects have had heavy cost implications for the Tanzania Electric

Supply Company (Tanesco), limiting the company's ability to invest to meet further demand, unless it can increase its own revenue streams. The immediate focus is to make Tanesco a viable entity, which will involve tariff increases. A power system master plan sets out the strategic direction of the sector for the next 25 years and has warned of electricity shortages until 2012. *Implications: Opportunity for renewable energy to address electricity shortages especially in rural areas.*

- **Renewables policy:** Tanzania has adopted a comprehensive regulatory framework supporting small renewable energy projects, which is considered one of the best practices in the region. The framework includes standardized power purchase agreements and tariffs for small power projects (for both the main grid and isolated grids), simplified regulatory rules for small power projects and comprehensive guidelines for the project developers. Through discussions with the World Bank team working on the technical assistance programs for market development over the past several months, it has been determined that a pipeline of small-scale RE projects already exists in Tanzania. *Implications: Opportunity for IFC/ WB to provide additional financing (already underway) to establish a credit line for small rural/renewable energy projects that would fill in the financing gap by providing local banks with long-term funds to on-lend.*
- **Water & Agriculture:** The frequency of drought has increased, and with agriculture employing over two-thirds of the country's workforce, water shortages will continue to have tremendous impact on the economy, as agriculture currently accounting for around 28% of GDP. Agricultural production is traditionally subject to considerable fluctuations owing to weather. (Almost all agricultural production is rain-fed and crop production is the most important component of agricultural output.) There is considerable under-utilized land, and the land that is in use is dominated by small-scale subsistence farmers. Inefficient agricultural methods rely on traditional, low-energy technologies. *Implications: The government is a key partner in the agricultural sector, and due to the dependence on rain-fed agriculture there are opportunities for investment in infrastructure and new technology focused on climate change adaptation. Cleaner production technology may be key to water conservation.*

Rural electrification: Tanzania Energy Development and Access Expansion Project (TEDAP) has a substantial off-grid component focused on rural electrification via a rural/renewable energy credit line in the amount of US \$20-25 million. TEDAP activities have, among other, created a favorable environment for the development of small renewable energy projects. As a result, a number of rural renewable energy projects have been initiated by the local private sector. Eighty potential projects have been identified, of which 22 projects are considered priority (with confirmed sponsors and detailed design studies already completed or underway) with cumulative total size of 78 MW. This renewable energy potential under development substantially exceeds the original TEDAP's expectations (78MW versus the 17MW target envisaged at appraisal). *Implications: the establishment of the WB/IFC credit line would scale-up the impact of TEDAP's renewable energy intervention – from a few pilots to a prospective long-term program.*

- **Carbon finance:** There are currently six registered projects in Tanzania: two fossil fuel switching, one biomass energy, one hydro, one landfill gas, and one reforestation. Renewable energy represents the greatest volume of emissions credit potential for Tanzania. The government has committed to fostering an enabling environment for stimulation of CDM projects and is encouraging the private sector and other non-governmental actors to develop and implement viable CDM projects. *Implication: The institutional framework exists for carbon finance, and the public sector is supporting increased private sector investments.*

Suggested next steps:

- **Tanzania Electric Supply Company Limited (TANESCO):** Wholly state-owned entity responsible for power generation and all transmission and distribution networks. TANESCO is responsible for planning new power projects aimed at meeting the increasing industrial, commercial, and residential power demands. www.tanesco.com
- **Ministry of Energy and Mines (MEM):** MEM provides input into the development process of the country through establishment of a reliable and efficient energy production, procurement, transportation, distribution and end use system in an environmentally sound manner. MEM is a strong advocate of small power projects (SPPs) and of the Tanzania Energy Development and Access Expansion Project. <http://www.tanzania.go.tz/energy.htm>
- **Ministry of Water & Livestock Development:** Vision to achieve a sustainable water resources and livestock development and management which is responsive to the needs, interests and priorities of the Tanzania population, both in rural and urban areas by the year 2025. Responsible for Coordinate Water Resources Development Policy, Rural and Urban Water Supplies, Sewerage and Drainage, Drilling and Dam Constructions, Water Resources Institute, Central Stores, Central Water laboratory, River Basin Development, Water Quality and Pollution Control, Water Boards, Livestock Development Policy, Livestock Research and Extension Services, Veterinary Services, Hides and Skins. <http://www.tanzania.go.tz/water.htm>
- **Tanzania Solar Energy Association (TASEA):** Is an international membership organisation whose mission is to develop and promote the use of solar energy in Tanzania. TASEA strives to accelerate the development and use of solar energy resources through advocacy, education, research and collaboration among professionals, policy-makers and the public. www.tasea.org