**PROJECT INFORMATION DOCUMENT (PID)**

**CONCEPT STAGE**

Report No.: AB6633

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| **Project Name** | SINGIDA WIND POWER PROJECT |
| **Region** | Africa |
| **Country** | United Republic of Tanzania |
| **Sector** | Renewable energy (100%) |
| **Lending Instrument** | IDA PRG |
| **Project ID** | P126432 |
| *{If Add. Fin.}* **Parent Project ID** |  |
| **Borrower(s)** | United Republic of Tanzania |
| **Implementing Agency** | Wind EA SPV |
| **Environmental Screening Category** | [ ]A [X]B [ ]C [ ]FI [ ]TBD (to be determined) |
| **Date PID Prepared** | July 5, 2011 |
| **Estimated Date of Appraisal Completion** | February 28, 2013 |
| **Estimated Date of Board Approval** | June 28, 2013 |
| **Concept Review Decision** | Following the review of the concept, the decision was taken to proceed with the preparation of the operation. |

1. **Introduction and Context**

## Country Context

1. Tanzania has an estimated population of about 43.7 million, growing annually at a rate of 2.9 percent. It has a land area of about 945,087 sq. km and is well endowed with natural resources such as water resources, tin, iron ore, coal, gemstones, gold, natural gas, geothermal and nickel. Tanzania has experienced high growth, averaging between 5 to 7 percent, over the past decade, owing to sound macroeconomic policy, economic liberalization, and an expanding public sector. Due to the global economic crisis, growth slowed to 6.0 percent in 2009 from 7.4 percent in 2008. In the medium term, annual GDP growth is expected to rise to 7.5 percent or higher due to an expanding mining sector, particularly gold, and growth in exports. Sustained high growth depends, however, on a favorable global economic environment, infrastructure investments, and structural reforms, especially to improve the business climate.
2. Among the most important infrastructure investments currently needed, are investments in Tanzania’s power sector. Providing relatively low-cost and high quality energy will: (i) improve system reliability and therefore improve the well being of the population; (ii) remove a binding energy supply constraint to continued economic growth in the country; and (iii) increase the country’s competitiveness in terms of industrial and commercial development with related benefits of increasing employment and income.

## Sectoral and Institutional Context

* 1. **Current Demand and Supply Situation**

1. Tanzania is endowed with diverse energy sources including biomass, natural gas, hydropower, coal, geothermal, solar and wind power, much of which is untapped. The country’s main installed generation capacities (1,006MW) are based on hydropower (56 percent) and natural gas (34 percent). Despite the country’s vast potential energy resources, the power sector in Tanzania has experienced several generation shortage crises in former years. The most recent one occurred in February of this year when the national utility, Tanzania Electric Supply Company (TANESCO) had to load shed up to 213 MW at peak, since the available hydropower generation fell short to serve the current maximum demand of 846 MW, due to lack of sufficient water levels in the main hydropower stations. The severity of the crisis has eased by now, but is still not entirely overcome, again underlying the fact that the need for additional generation capacities is by far the biggest challenge in the sector.
2. Key sectoral issues include: (i) reliance on one major river basin for over 50 percent of the installed hydropower generation capacity; (ii) distribution losses of around 20 percent; (iii) strong demand growth of around 7.6 percent p.a.; and (iv) certain thermal generation capacities that can only be operated on a temporary basis due to high oil prices and surrounding legal disputes.
3. While Tanzania’s hydropower generation prospects are too important to be ignored in the long term, Tanzania’s power generation mix also has to be improved by increasing the production share of other generation sources like thermal (mainly natural gas) and renewable (wind).
   1. **Planned Sector Expansion**
4. The Power System Master Plan Update 2009 (PSMP) completed in August 2009 provides a demand and supply assessment for the sector, based on anticipated needs of the population and economy of Tanzania for the period up to 2033. Based on the long-term growth in demand forecasts, and a least cost supply response to demand, the PSMP indicates that the energy sales requirements for Tanzania are expected to be about 11,925 GWh in 2019 and 30,214 GWh in 2033. According to TANESCO’s short to medium term generation expansion plan (up to 2019) the utility currently plans to add a total of 1,791 MW in capacity, which would mainly be based on natural gas, biomass, wind and hydropower (including this project). Most of the new generation sites are located in the southern regions of the country. On the basis of this expansion plan TANESCO could reach a capacity reserve margin of 35 percent by 2019 and a Hydro/Thermal/Renewable generation mix of 42 percent/53 percent/5 percent.
5. In addition, Tanzania, through the East African Power Pool (EAPP) is committed to future power trade opportunities with its neighbors. The country is currently considering a 400 kV interconnection with Kenya that would allow trading (most likely power imports in the medium-term and power exports in the long-term) with EAPP[[1]](#footnote-1) member countries. The Kenya-Tanzania interconnector will allow the country to be linked to the future interconnection between Kenya and Ethiopia, and various interconnections between Kenya, Uganda, Rwanda, Burundi, and Eastern DRC which are expected to be constructed in 2014 under Nile Equatorial Lakes Subsidiary Action Program (NELSAP) program. This project with its important generation capacity additions and its strategic location at the Tanzania-Kenya transmission link will support future power trade opportunities.
   1. **Institutional Framework**
6. Overall the institutional framework in Tanzania’s power sector is well prepared. The Government of Tanzania (GOT) implemented substantial reform measures during the last ten years, which led to the creation of an independent regulator, the Energy and Water Utilities Regulatory Authority (EWURA), the Rural Energy Agency (REA) and the related Rural Energy Fund (REF) and also restructured the government-owned, vertically integrated utility TANESCO, enforcing its top management structure and creating a Board of Directors with public and private sector stakeholder representatives. In addition the GOT, led by the Prime Minister’s office, recently approved the Public Private Partnership Act, which not only encourages the use of PPP models in various infrastructure sectors (including the power sector), but also proposes additional enhancements on the coordination and origination of PPP projects.
   1. **Single Buyer utility - TANESCO**
7. TANESCO is a parastatal organization that was established in 1964 and is wholly owned by the Government of the United Republic of Tanzania. The Ministry of Energy and Minerals (MEM) sets and oversees policies and strategies while EWURA regulates the operations of TANESCO. The utility has a workforce of 5,550 staff, largely employed in the regional offices. TANESCO has undergone reorganization (approved by its Board on March 28, 2007), including a leaner HQ, and empowered decentralized staff. While those changes have helped to substantially improve the utility’s situation, TANESCO is still facing multiple challenges in providing reliable power to an expanding number of households, institutions and businesses. As mentioned before, the largest current challenge to TANESCO is the lack of adequate generation capacity, which this project will help to mitigate.
8. TANESCO has also made progress on its Financial Recovery Plan (FRP) which was endorsed in 2007 to help the utility to reduce its financial losses with an ultimate objective of making it an efficiently performing and financially sound service provider for the people of Tanzania. The World Bank has recently approved a number of operations supporting TANESCO (for example, the Backbone Transmission Investment Project in July 2010 and the Additional Financing for the Energy Development and Access Expansion Project (currently being processed). We are therefore cognizant of the TANESCO financial position (despite TANESCO not having yet released its 2010 audited accounts). Whilst TANESCO does not yet benefit from full cost recovery tariffs, retail tariffs have been increased by a cumulative 44 percent over the last three years improving its overall financial performance. For instance, TANESCO’s revenues increased from TSh 371 billion in 2008 to TSh 413 billion in 2009 due to those tariff increases and the impact of an increase in large number of new customer connections. TANESCO’s financial position continues to improve and will be monitored closely by the Bank team as project preparation progresses.

## Relationship to CAS

1. The Bank is one of the key partners supporting the Tanzanian government in its efforts to establish enabling conditions for sustainable development and reliable energy provisions for economic growth and poverty alleviation. Furthermore, this project is in line with the objectives of the GOT’s new poverty reduction strategy, MKUKUTA 2 (cluster strategy 1.2.8.1: expand production, distribution, and access to energy), as well as with the new World Bank Tanzania CAS discussed by the Board on June 7, 2011. The project, contributes to the outcomes and goals of each strategy by increasing the availability of electricity. In addition it will not only support the government’s growth and poverty alleviation efforts that access to electricity[[2]](#footnote-2) brings in terms of social and economic benefits but also facilitates the conditions for private sector development of commercial activity in the country. Furthermore, the project will improve the quality of life for the affected population. At the regional level, the project supports several economic and social objectives of the World Bank’s New Africa Strategy of March 2011, notably to the thematic area of *Competitiveness and Employment* by contributing to improved critical infrastructure services. At the corporate level, the Singida Wind Project is also in line with the current draft WBG Energy Sector Strategy.
2. **Proposed Development Objective(s)**

## Proposed PDO

1. The project development objective (PDO) is to improve the environment for private sector investment in this project, thereby increasing investment in Tanzanian climate-friendly wind generation capacity.

## Key Results

1. Key outcome indicators would be (i) increased investment by the private sector in generation (in US$), and (ii) additional climate friendly capacity (in MW) on the grid.
2. Intermediate indicators are (i) financial close of the project (ii) implementation progress including construction of the wind farm and associated transmission line, and (iii) commissioning test and trial run results.
3. **Preliminary Description**
4. The proposed project consists of a 100 MW wind farm to be built, owned, and operated (BOO) by a private-sector project company (Wind EA). The project cost is estimated to be between US$230-290 million and the project was confirmed by the PSMP 2009 as one of the next least cost short to medium term generation additions. It is envisaged that this privately financed project company will supply power into the Tanzanian national grid under a long term Power Purchase Agreement (“PPA”) with TANESCO. The wind farm will be constructed along the Rift Valley on a site located east of the town of Singida, in the district and region of Singida.
5. The intended site enjoys both a favorable climatic condition and geological base and an acceptable seismic condition. It is anticipated that the Project will, in the long term, require a total of 3,000 hectares. The mean wind speed of the site is assessed to be 8.8 m/s. Based on the measurement data collected until September 2010, the net capacity factor of the WIND EA power plant is estimated to be 42 percent and the net annual energy production 370.0 GWh/y. Assuming a reasonable, yet aggressive, development schedule the plan calls for achieving financial close in early 2013, construction during 2013 and delivery of first power in 2014.
6. The Project will include the construction of any necessary transmission line to connect the plant to the grid. Since the 220kV transmission line interconnection is only in the region of 10km, and no major resettlement issues are anticipated due to this line construction, the current project scope proposes that the transmission link will be designed and implemented by the private company. However, it is further intended that, upon completion of construction, the title to the transmission line will pass to TANESCO. Nonetheless, as the Project includes the costs for this line, WIND EA will need to recoup these costs as a standard Project cost.

***Bank Financing***. The GOT formally requested World Bank assistance to develop and provide financing to this project. It plans to avail of an IDA Partial Risk Guarantee (PRG) sized at US$100 million. The Bank PRG will cover commercial lenders against debt service payment defaults resulting from the government’s failure to meet its payment obligations under various contracts. Through its involvement the World Bank will provide comfort to investors in Tanzania’s power sector (including sponsors and commercial lenders). This is particularly important as a number of the investors may be first time investors in Tanzania. During the course of implementing the PRG, the Bank team will also bring international experience to the project structuring process to help bring about appropriate financial closure.

1. **Safeguard Policies that might apply**

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| **Safeguard Policies Triggered by the Project** | Yes | No | TBD |
| [Environmental Assessment](http://www.worldbank.org/environmentalassessment) ([OP](http://wbln0011.worldbank.org/Institutional/Manuals/OpManual.nsf/OPolw/9367A2A9D9DAEED38525672C007D0972?OpenDocument)/[BP](http://wbln0011.worldbank.org/Institutional/Manuals/OpManual.nsf/BProw/C4241D657823FD818525672C007D096E?OpenDocument) 4.01) | X |  |  |
| Natural Habitats ([OP](http://wbln0011.worldbank.org/Institutional/Manuals/OpManual.nsf/OPolw/71432937FA0B753F8525672C007D07AA?OpenDocument)/[BP](http://wbln0011.worldbank.org/Institutional/Manuals/OpManual.nsf/BProw/62B0042EF3FBA64D8525672C007D0773?OpenDocument) 4.04) |  |  | X |
| Pest Management ([OP 4.09](http://wbln0011.worldbank.org/Institutional/Manuals/OpManual.nsf/OPolw/665DA6CA847982168525672C007D07A3?OpenDocument)) |  | X |  |
| Physical Cultural Resources (OP/BP 4.11) |  |  | X |
| Involuntary Resettlement ([OP](http://wbln0011.worldbank.org/Institutional/Manuals/OpManual.nsf/bytype/AA37778A8BCF64A585256B1800645AC5?OpenDocument)/[BP](http://wbln0011.worldbank.org/Institutional/Manuals/OpManual.nsf/bytype/383197ED73D421A385256B180072D46D?OpenDocument) 4.12) | X |  |  |
| Indigenous Peoples ( OP/BP 4.10) |  | X |  |
| Forests ([OP](http://wbln0011.worldbank.org/Institutional/Manuals/OpManual.nsf/OPolw/C972D5438F4D1FB78525672C007D077A?OpenDocument)/[BP](http://wbln0011.worldbank.org/Institutional/Manuals/OpManual.nsf/GPraw/97FA41A3D754DE318525672C007D07EB?OpenDocument) 4.36) |  | X |  |
| Safety of Dams ([OP](http://wbln0011.worldbank.org/Institutional/Manuals/OpManual.nsf/OPolw/C12766B6C9D109548525672C007D07B9?OpenDocument)/[BP](http://wbln0011.worldbank.org/Institutional/Manuals/OpManual.nsf/BProw/D3448207C94C92628525672C007D0733?OpenDocument) 4.37) |  | X |  |
| Projects in Disputed Areas ([OP](http://wbln0011.worldbank.org/Institutional/Manuals/OpManual.nsf/OPolw/72CC6840FC533D508525672C007D076B?OpenDocument)/[BP](http://wbln0011.worldbank.org/Institutional/Manuals/OpManual.nsf/BProw/5DB8B30312AD33108525672C007D0788?OpenDocument) 7.60)[[3]](#footnote-3)\* |  | X |  |
| Projects on International Waterways ([OP](http://wbln0011.worldbank.org/Institutional/Manuals/OpManual.nsf/OPolw/5F511C57E7F3A3DD8525672C007D07A2?OpenDocument)/[BP](http://wbln0011.worldbank.org/Institutional/Manuals/OpManual.nsf/BProw/47D35C1186367F338525672C007D07AE?OpenDocument) 7.50) |  | X |  |

1. **Tentative financing**

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| Source: | ($m.) |
| Borrower/Recipient | 5.00 |
| IDA PRG  Other Debt and Equity Sources  Sponsors Equity Sources | 100.00  125.00  70.00 |
| Total | 300.00 |

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1. EAPP countries include Kenya, Ethiopia, Sudan, Egypt, Uganda, Burundi, DRC, Rwanda, and Djibouti. [↑](#footnote-ref-1)
2. This project will directly support access to electricity efforts as access expansion efforts can only work when there is enough power supply to support new customers. [↑](#footnote-ref-2)
3. \* *By supporting the proposed project, the Bank does not intend to prejudice the final determination of the parties' claims on the disputed areas* [↑](#footnote-ref-3)