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# Combined Project Information Documents / Integrated Safeguards Datasheet (PID/ISDS)

Appraisal Stage | Date Prepared/Updated: 18-Apr-2018 | Report No: PIDISDSA22941



**BASIC INFORMATION**

**A. Basic Project Data**

Country Africa	Project ID P163752	Project Name AFCC2/RI-3A Tanzania-Zambia Transmission Interconnector	Parent Project ID (if any)
Region AFRICA	Estimated Appraisal Date 01-Feb-2018	Estimated Board Date 31-May-2018	Practice Area (Lead) Energy & Extractives
Financing Instrument Investment Project Financing	Borrower(s) Ministry of Finance and Planning (on behalf of the Government of the United Republic of Tanz, Eastern Africa Power Pool	Implementing Agency Tanzania Electric Supply Company Ltd.	

Proposed Development Objective(s)

The Development Objective for the Series of Projects is to establish cross-border transmission capacity between the Southern African Power Pool and the Eastern Africa Power Pool to enable regional power trade.

The Project Development Objective is to (i) increase power transmission capacity to southern regions of Tanzania and (ii) strengthen institutional capacity in Tanzania and the Eastern Africa Power Pool for regional power trade.

Components

Transmission Infrastructure Extension  
TANESCO Transmission System Readiness for Interconnection, and Corporate Commercial Management Improvements  
Project Implementation Support and Capacity Building  
Technical Assistance to EAPP

**Financing (in USD Million)**

Financing Source	Amount
Borrowing Agency	10.00
EC: European Commission	30.00
FRANCE: French Agency for Development	100.00
International Development Association (IDA)	455.00
IDA Grant	10.00



Total Project Cost

605.00

Environmental Assessment Category

A - Full Assessment

Decision

The review did authorize the preparation to continue

Other Decision (as needed)

## A. Introduction and Context

1. **The proposed project is the first (of two) series of projects (SOP) to interconnect the Zambian and Tanzanian power systems** to allow for regional power trade between Southern African Power Pool (SAPP) and Eastern African Power Pool (EAPP) countries and to increase availability of reliable power to underserved areas in both countries. The SOP will finance the final segment of the Ethiopia-Kenya-Tanzania-Zambia (EKTZ) regional transmission corridor that is being developed in a phased manner. Linking of the EAPP and SAPP networks through the Tanzania-Zambia interconnection is a critical element to provide an expanded market for diversifying the energy sources and leveling the cost of electricity supply across the region. Once the EAPP and SAPP are interconnected and synchronized, it will create the largest geographic energy market in the world—from Cape to Cairo.
2. The proposed project, SOP1, will extend the transmission backbone within Tanzania, enhance TANESCO institutional and technical capacity for regional power trade, and support the EAPP's ability to set up a power market platform to scale up power trade opportunities within the Eastern Africa region.
3. Tanzania will benefit from extension of transmission infrastructure to underserved areas in the southwest of the country. Increased availability of reliable power supply will enable expansion of electricity access in the project areas for households and businesses. The interconnection with Zambia will also improve Tanzania's energy security, allow generation reserve sharing and help lower costs of supply from regional trade.

### Regional Context

4. **Regional trade can play a vital role in weathering recent economic downturn, boosting growth and shared prosperity in East and Southern Africa.** In 2016, growth slowed to an estimated 1.5 percent in about two-thirds of the countries in Sub-Saharan Africa that account for 83 percent of the regional gross domestic product (GDP). This marked the region's worst performance in more than two decades.<sup>1</sup> The East Africa subregion endured the economic downturn relatively well and maintained growth slightly

<sup>1</sup> International Monetary Fund. 2016. Regional Economic Outlook for Sub-Saharan Africa.



above 5 percent.<sup>2</sup> However, the vulnerability to economic shocks remains high as all the countries in the sub-region are low income with per capita GDP below US\$1,500 (2016) and prevailing high poverty rates.<sup>3</sup> Regional trade integration is key to a sustained reduction in poverty in the region through two overarching pathways. First, lower production costs, facilitated by economies of scale from access to regional markets and leveraging of countries' comparative advantages and complementary resource endowments, and second, ability to sustain shocks by strengthening the resilience of economies to unfavorable global market conditions and climatic variability.

5. **Regional integration remains a political priority in East and Southern Africa**, where the regional integration agenda is being driven by several regional economic cooperation and trade initiatives and blocs established in the 1990s. The Southern African Development Community (SADC), founded in 1992; the Common Market for Eastern and Southern Africa (COMESA), founded in 1994; and the EAC, founded in 1999, have been set up with the objective of promoting mutually beneficial trade and increased social and economic cooperation across all sectors with the emphasis on improved regional infrastructure, greater regional and subregional trade, agricultural development, and industrialization. The regional economic cooperation blocs share the common strategic vision of moving the subregion toward a common market, customs union, and monetary union.

6. **Regional energy trade in East and Southern Africa has evolved since the mid-1990s.** The growing need to address national electricity supply-demand imbalances in the most cost-effective manner boosted interest in cross-border electricity trade and resulted in the establishment of the SAPP in 1995 and the EAPP in 2005 under the umbrellas of SADC and COMESA, respectively.<sup>4</sup> The objective of the SAPP and EAPP is to coordinate power pool operations and implement regional power trade. Members of the SAPP include 16 operating and nonoperating members from electricity utilities and independent power producers (IPPs) and transmission companies operating in member countries. Similarly, the EAPP is constituted of all public utilities in the 11 countries, though no IPP is currently a member of the EAPP. The SAPP covers 12 countries with a population of 280 million people, with an installed capacity of 56 GW and annual energy consumption of 400 TWh.<sup>5</sup> The EAPP covers 11 countries with a population of 430 million, with an installed capacity of 51 GW and annual energy consumption of 315 TWh in 2015.

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<sup>2</sup> For this project, the East Africa subregion is defined as the group of countries that comprise the East African Community (EAC) (Kenya, Tanzania, Uganda, Rwanda, and Burundi) as well as Ethiopia, given the central role of the Nile Basin in determining hydropower potential for the region. These six countries are members of the EAPP, which also includes the Democratic Republic of Congo, Egypt, and Libya. Africa Economic Outlook, 2017. African Development Bank.

<sup>3</sup> World Bank World Development Indicators 2017.

<sup>4</sup> The EAPP was established in 2005 by seven Eastern African countries (Burundi, Democratic Republic of Congo, Egypt, Ethiopia, Kenya, Rwanda, and Sudan) and later joined by Tanzania, Libya, and Uganda in 2010, 2011, and 2012 respectively. The SAPP was created at the SADC summit in 1995 through an IGMoU of the 12 SADC member countries (excluding Mauritius), and later joined by the Democratic Republic of Congo.

<sup>5</sup> Ricardo. 2016. *Complementary Study on Power Trade Volumes, Wheeling Arrangements, and Impact on the Interconnected networks for ZTK.*



7. **The abundant, diverse, and renewable energy resources in East and Southern Africa underlie the significant potential benefits from regional energy sector integration.** Significant hydropower potential in Ethiopia, Democratic Republic of Congo, Tanzania, Zambia, Zimbabwe, and Uganda; geothermal in Kenya and Ethiopia; wind power along the coastal areas; solar photovoltaic in most countries; and solar thermal power in Namibia's Kalahari deserts and South Africa's Western Cape, together represent vast energy potential for the region. Complementary to the rich renewable energy potential are natural gas resources in Mozambique and Tanzania and coal in South Africa, Mozambique, Botswana, and Zambia. Regional power system integration can deliver immense benefits by harnessing and interlinking these diverse resources to increase supply security, lower average generation costs, and reduce the recurrent financial and economic burden imposed by droughts and seasonal fluctuation on many hydropower dependent energy sectors in the region (including Tanzania and Zambia, which experienced recent drought events).<sup>6</sup>

8. **The SAPP is now the most advanced power pool on the continent and the EAPP remains nascent.** The SAPP was initially envisioned as a cooperative pool but transitioned to a competitive pool with the introduction of the short-term energy market (STEM) in 2001 for daily and hourly contracts and post-STEM balancing market in 2002. Currently, the trading in SAPP is based largely on bilateral contracts (80 percent market share) with share of short-term markets growing steadily. The current short-term trading platforms are the day-ahead market (DAM) introduced in 2009, the post-DAM, intraday market, and the recently introduced forward physical monthly and weekly markets. Compared to the SAPP, the EAPP is in the initial stages of development and implementation of various commercial, operational, and regulatory mechanisms to create a similar trading platform.

9. **Increasing interconnections among the EAPP countries and the link to SAPP will create a large subcontinental market that could pave the way for greater regional integration in other sectors.** With the planned interconnection of the EAPP and SAPP, both power pools are working on the harmonization of rules and procedures to enable mutually beneficial trade across potentially the largest interconnected geography in the world. Increased power trade between countries will work to deepen regional integration and build trust among countries. The experience of a mutually beneficial exchange, adherence to fair and transparent market rules, and successful trade contract enforcement can ease skepticism toward trade and the perceived trade-off between national self-sufficiency and dependence on trade.

## Country Context

1. **Tanzania is a low-income country located in Eastern Africa, with a population of 56 million (2016), projected to increase to 100 million by 2040.** Tanzania's economy depends on agriculture, which accounts for more than 25 percent of GDP, provides 85 percent of exports, and employs about 65 percent of the work force. Tanzania has experienced a strong and steady GDP growth rate of 6.7 percent per year between 2006 and 2016, higher than the average growth for Sub-Saharan Africa of 4.8 percent during the

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<sup>6</sup> During the years of good hydrology, up to 40 percent and 90 percent of electricity generation comes from hydropower in Tanzania and Zambia, respectively. Tanzania experienced a substantial power shortage in 2012–2013, and Zambia suffered a similar large power crisis in 2015–2016.



same period.<sup>7</sup> The poverty level declined significantly, from 60 percent (2007) to an estimated 47 percent (2016).<sup>8</sup> The reduction in poverty have been driven by financial transfers under the social safety net program, greater engagement in agriculture and rural economies, increased ownership of communication and transport equipment, and improved rural infrastructure such as access to roads and markets.<sup>9</sup> Yet, 12 million Tanzanians still live in extreme poverty, of which 10 million live in rural areas.<sup>10</sup> Productive job creation was slow to absorb the 800,000 new entrants to the job market each year with most of the population engaged in low-productivity subsistence farming.<sup>11</sup>

**2. Tanzania aspires to become a middle-income country by 2025, as outlined in the Tanzania Development Vision 2025 and the Second Five-year Development Plan (FYDP II) 2016/17–2020/21.**<sup>12</sup> The Government of Tanzania (GoT) emphasizes ‘competence and competitiveness’ as one of driving forces to realize the vision, based on sound macroeconomic management, infrastructure development, promotion of information and communication technology, and utilization of domestic resources. Tanzania needs to realize its potential by (a) strengthening institutional capacity; (b) creating an open and competitive policy environment; (c) promoting public-private partnerships to raise investment levels to fill the large infrastructure gaps, particularly in transport and energy; (d) raising human capital levels; and (e) coordinating across government agencies to manage Tanzania’s rich natural resources for equitable growth.

**3. Increasing infrastructure links to regional markets is critical for Tanzania’s continued growth.**<sup>13</sup> Tanzania is geographically well-positioned to harness its potential. With a rich endowment of natural resources, a long coast line, port infrastructure and shared boundary with eight other countries – five of which are land locked – increased infrastructure linkages can help Tanzania establish itself as a regional trade hub. Improved and expanded infrastructure in the border areas, which also happen to be amongst the poorest and underserved regions of the country, will bolster economic growth and reduce regional disparities in the country.

**4. Tanzania has a large infrastructure gap in energy, a sector that is critical to industrialization and improvement of the welfare of the poor.** Greater economic diversification and poverty reduction relies on availability of reliable and affordable electricity services. The expansion in public service delivery – health, education, water – also depend on electricity. A large investment push is needed, across the electricity value chain, to expand electricity infrastructure to meet the needs of the growing population and diversifying economy.

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<sup>7</sup> World Bank Country Partnership Framework for Tanzania FY2018–2022, Concept Note, August 2017.

<sup>8</sup> World Bank Tanzania Economic Update, 2017; based on the US\$1.90 per day global poverty line.

<sup>9</sup> World Bank. 2017. *Tanzania - Systematic country diagnostic*. Washington, D.C. : World Bank Group

<sup>10</sup> World Bank Tanzania Economic Update, 2017.

<sup>11</sup> World Bank Country Partnership Framework, Concept Note, August 2017.

<sup>12</sup> The Second National Five-Year Development Plan (NFYDP II) 2016/17–2020/21 integrates two themes—growth and transformation and poverty reduction from the National Strategy for Growth and Reduction of Poverty (National Strategy for Growth and Reduction of Poverty /MKUKUTA) planning frameworks.

<sup>13</sup> World Bank Country Partnership Framework for Tanzania FY2018–2022, Concept Note, August 2017.



## Sectoral and Institutional Context

10. **Tanzania organized its power sector under the Ministry of Energy (MoE), with a national operator and a regulator.** Tanzania's power sector is dependent on a state-owned, vertically integrated electric utility for generation, transmission, and distribution. Private investment in the sector began in the early 2000s, with the first large IPP starting its operation in 2002, but the IPP presence has not been significant. The Electricity Act was adopted in 2008 to establish a stronger separation of ownership, policy, and regulatory functions. The act created a clearer framework for sector governance, licensing, and tariff regulation. Key actors of Tanzania's power sector include

- **The MoE**, which is responsible for developing and reviewing Government policies related to electricity supply and distribution, including electrification of rural areas;
- **Tanzania Electric Supply Company Limited (TANESCO)**, which is a state-owned, vertically integrated electric utility responsible for electricity generation, distribution, transmission, and sale of electricity in the Tanzanian mainland and bulk power supply to Zanzibar;
- **Energy and Water Utilities Regulatory Authority (EWURA)**, which is responsible for the regulation of four sectors, electricity, water, and transport, and distribution of petroleum and natural gas; and
- **Rural Electrification Agency (REA)**, which is responsible for implementing grid extension in rural areas and supporting private sector small-scale rural power generation projects (both grid and off-grid).

11. **The GoT has been making steady but rather slow progress in energy reform.** The National Energy Policy (NEP), updated in 2015, laid out the mission to provide “reliable, affordable, safe, efficient, and environment friendly modern energy services to all while ensuring effective participation of Tanzanians in the sector.” For the electricity sector, the NEP set out the following objectives: (a) improving security of supply through effective use of energy resources and cross-border trading, (b) enhancing power reliability and coverage of transmission and distribution networks, (c) enhancing utilization of renewable energy resources, (d) accelerating rural electrification to foster socio-economic transformations, and (e) increasing private sector participation in electricity supply industry. The 2014 GoT's Energy Supply Industry Reform Road Map also laid out essential steps in reforming the sector and creating a competitive and financially viable electricity service market. However, the progress in the implementation of the Energy Supply Industry Reform Road Map has been rather limited, to a large extent due to TANESCO's persisting financial problems.

12. **Tanzania is targeting an ambitious expansion in electricity supply in the coming years.** The 2016 Power System Master Plan (PSMP) declared a very ambitious objective to increase electricity generation capacity from 1,352 MW (2016) to 4,915 MW by 2020 harnessing Tanzania's significant gas and renewable energy resources. Meeting the ambitious targets will depend critically on the availability timely financing of generation projects and transmission network expansion. The main transmission corridors are in the northern and central regions, including the 400 kV double circuit backbone transmission line, financed by the World Bank, African Development Bank (AfDB), and the European Investment Bank under the Backbone Transmission Investment Project (BTIP) (P111598) completed in 2017. At the same time, the





western and southern parts of the country have almost no transmission infrastructure. The planned increase of Tanzanian power generation and cross border power exchange will thus require critical reinforcement and extension of transmission networks in various parts of the country, and specifically in the southern and western corridors.

**13. Electricity access has increased significantly in recent years, but yet a significant proportion of the population remains without access.** Tanzania has made an impressive improvement in terms of electricity access rate, which increased from 7 percent (2011) to 33 percent (2016) because of grid densification.<sup>14</sup> This was driven by (a) the acceleration of public investment in urban and rural electrification, implemented under the Government’s Big Results Now Initiative and the National Rural Electrification Program; (b) the introduction of a petroleum levy to finance the Rural Electrification Program; and (c) reductions in connection fees and service charges, introduced in 2013 and again in 2016, which were made possible by improved technologies and an increase in Government subsidies. However, two-thirds of the population remain without access and a large disparity exists between electricity access rates in urban areas (65 percent) and rural (17 percent).<sup>15</sup> The GoT aims to increase the country’s overall electricity connectivity level to 50 percent by 2025 and at least to 75 percent by 2033.

**14. Energy security is threatened by recurrent droughts.** The total installed electricity generation capacity in Tanzania is 1,352 MW, largely based on natural gas (43 percent), hydropower (43 percent), and heavy fuel oil (12 percent). In 2011–2013, seasonal droughts severely cut hydropower production, resulting in the need to procure expensive emergency power plants (EPPs) that left the sector financially precarious. Gas-to-power generation is viewed as one of the long-term solution to increasing security of supply, using significant domestic untapped natural gas reserves. However, the development of new gas power plants has been progressing slower than planned, thus leaving Tanzania’s electricity supply exposed to potential new disruptions related to seasonal variability of hydropower resources. TANESCO’s transmission networks are still limited to connecting the main cities and facing capacity constraints resulting in major bottlenecks to adding and connecting new sources of generation, as well as to new connections of households and businesses. Losses from transmission and distribution stand at about 16 percent, some of which are caused by transmission congestion in certain regions in Tanzania, during peak hours.<sup>16</sup>

**15. Financial performance of TANESCO has improved in recent years.** TANESCO has recovered from its drought-triggered supply shortages of 2011–2013, phased out 300 MW of EPPs, and returned to positive operating cash flow. However, the cash flow surplus is not enough to meet its infrastructure investment needs. Arrears accumulated through FY2015/16 (after an initial drop in FY2014), due to the devaluation of the Tanzanian shilling and now stand at around US\$312 million. If unresolved, this situation would continue threatening the sector financially and undermining the environment for

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<sup>14</sup> ‘Access’ is defined by the Tanzania REA as the total population near the locality benefiting from electricity, irrespective of the population being connected to electricity.

<sup>15</sup> These figures are for Tanzania Mainland, as reported in the *Energy Access Situation Report, 2016 Tanzania Mainland*, published by the REA.

<sup>16</sup> 5.5 percent in transmission and 11.5 percent in distribution, according to TANESCO’s tariff application of February 2016.





potential private sector investment. Going forward, while TANESCO is expected to continue generating positive operating cash flows from its operations, the cash will fall substantially short of funding needs for the planned capital investment, with an estimated gap between the approved grants and loans and the level of required financing of TSh 5.3 trillion during FY2017/18–FY2021/22. Potential future drought years could put the utility back into an alerting financial situation, posing macroeconomic risk. Funding TANESCO’s capital investment through grants and/or soft loans and providing electricity supply diversification, including through the proposed TAZA, will contribute to restoring the long term operational and financial sustainability of Tanzania’s power sector. A detailed description of the TANESCO financial analysis is included in annex 5.

***For Tanzania, the proposed project presents multi-dimensional benefits***

16. **First, Tanzania’s transmission backbone will be extended to unserved regions to enable increased access to affordable and reliable power in southern and western regions.** The communities living along the border of Tanzania with Mozambique, Zambia, and Burundi are among the poorest in the country. These southwestern areas are largely dependent on rain-fed agriculture with limited access to infrastructure services, credit, and improved technologies, keeping yields and earnings low.<sup>17</sup> Several districts in the south and the west rely on 33 kV lines stretching over long distances, limited cross-border power connections (for example, a 66 kV line connecting Sumbawanga with Zambia), supplied by expensive diesel-fueled generation plants, feeding isolated grids. The existing grid infrastructure in the area is inadequate to support the scale-up of rural electrification and the development of productive loads in agriculture, mining, tourism, and other economic activities. The proposed project will enable the expansion of the electricity access in these areas (with future investments in distribution network and consumer connections) and the supply of reliable power to anchor consumers such as agribusinesses and farmers in the Southern Agricultural Growth Corridor (SAGCOT), which is on the line route. Complementary investments in rural electrification, funded by various development partners, including under the World Bank supported Tanzania Rural Electrification Expansion Program (P153781) will be able to leverage the upstream infrastructure under the proposed project. The transmission infrastructure could also help the future development of electricity generation resources in the southern and western regions of the country.

17. **Second, the interconnection with SAPP would enable Tanzania to access a large competitive power market and meet energy security needs in a cost-effective manner.** The ability to engage in short-term trade, either bilateral or through existing market mechanisms in SAPP, would enable Tanzania to diversify its energy mix, eliminate the need for expensive emergency power during supply shocks, and improve conditions for the development of scale-efficient generation infrastructure selling to regional power markets. Integration into regional power pools is expected to positively impact energy security and sector finances. Tanzania is actively looking to enhance its role in regional electricity trade by (a) realizing transmission projects such as the interconnections with Kenya (ongoing), Rwanda (ongoing), Zambia (proposed), and Uganda (planned); (b) strengthening the transmission backbone infrastructure to reliably transfer regional power; and (c) expanding the generation capacity to enable export to regional markets.

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<sup>17</sup> Tanzania’s main crops include maize, rice, wheat, which are rain-fed crops. A substantial portion of maize is produced in four southwestern regions (Iringa, Mbeya, Ruvuma, and Rukwa). World Bank Country Partnership Framework, Concept Note, August 2017.



The planned expansion of gas-based power generation in Tanzania will create an opportunity for electricity exports/imports to/from hydro-dependent systems of the EAPP or SAPP member countries. The import of firm thermal-generated power from Tanzania could improve supply security of other EAPP and SAPP countries and generate revenues for Tanzania.

18. **Third, within the EAPP to its North and the SAPP to its South, Tanzania is in the unique position of being the boundary between two power pools.** Tanzania along with the Democratic Republic of Congo, is a member of both the SAPP and EAPP. As interconnection with the EAPP (through the ongoing Kenya-Tanzania Interconnector) and with the SAPP (through the proposed project) are likely to be in close succession, Tanzania needs to make strategic decisions on how to sequence synchronization of operations to the two power pools. Tanzania could accrue substantial benefits from the diversification of power supply and lower cost power generation, when harmonization and synchronization between the EAPP and SAPP is achieved.

*For Eastern and Southern Africa, the proposed project presents region-wide benefits*

19. **First, the proposed project is part of a planned effort to create a geographically contiguous transmission corridor in the EAPP which links Ethiopia-Kenya-Tanzania to the SAPP through Zambia.** Once in place, this will allow large hydropower in Ethiopia compete with the SAPP and eventually with the Democratic Republic of the Congo hydropower, thereby reducing market power of any one supplier. Though distance will be a constraint, the eventual northward link with Egypt and Libya will be a strong counterbalance to the dominance of the South African system—further increasing market competition and stability. Planned interconnection of other EAPP countries—Uganda, Rwanda, and Burundi—will improve the integration of the EAPP and increase trade opportunities with the SAPP.

20. **Second, the proposed project contributes to EAPP’s multi-phased approach to establish a regional power market by 2025.** Power trade in the EAPP is currently limited to few long-term bilateral power purchase agreements (PPAs) and cross-border electrification arrangements. Power trade based on long-term purchase agreements is limited to Ethiopia-Sudan and Ethiopia-Djibouti. A long-term PPA also has been signed between Ethiopia and Kenya, with projected effectiveness in 2019, when the Ethiopia-Kenya Interconnector becomes operational. The main regional backbone, linking Ethiopia, Kenya, and Tanzania, is expected to be completed by 2021. The EAPP’s road map for power system integration (2015–2025) takes a three-phase approach with both physical interconnections and enabling environment for facilitating trade.

21. Analyses of the regional and national masterplans for the EAPP and SAPP countries show increasing surplus capacity in the medium term, according to which the EAPP may have a surplus of 24 TWh in 2023 to trade with the SAPP, while the SAPP may have a surplus of 147 TWh to trade with EAPP.<sup>18</sup> All countries in the region aspire to industrialize, grow electricity demand, and expand generation capacity rapidly. However, they also experience recurrent economic downturns and delays in generation expansion—many projects scheduled for commission on various masterplans are already significantly delayed. In such a scenario, forecasting demand-supply balance at the regional level is very difficult, if not

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<sup>18</sup> Ricardo. 2016. *Complementary Study on Power Trade Volumes, Wheeling Arrangements, and Impact on the Interconnected Networks for ZTK.*



impossible. Countries are thus increasingly looking toward short-term bilateral and market trade mechanisms. Even in this scenario, integration of power systems can secure reliable and cost competitive energy supply, lowering the average supply costs. Greater supply security and reserve capacity sharing would help meet national peak demand while avoiding and deferring hefty investments in new generation and greatly reducing the internal fiscal burden.

**Rationale for Bank Involvement**

22. **The World Bank is one of the key partners supporting the GoT in its efforts toward reliable energy provisions for economic growth and poverty alleviation.** The World Bank’s historical engagement with the GoT has focused on efforts across the sector value chain. Between FY2014 and FY2017, the World Bank supported the preparation and implementation of various operations, addressing power and gas sector policy development and reform (First and Second Gas and Power Development Policy Operations (P143645 and P145254, respectively); increasing domestic transmission capacity (BTIP [P111598]), reinforcing transmission and distribution capacity (Tanzania Energy Development and Access Expansion Project [P101645]); building capacity (Energy Sector Capacity Building Project [P126875]); and expanding access (Tanzania Rural Electrification Expansion Program (P153781)). By increasing the availability and reliability of electricity in the southern and western parts of the country and creating conditions for interconnection between Zambia and Tanzania, the proposed project will not only support the Government’s growth and poverty alleviation efforts through access to electricity but will also facilitate economic growth through increased commercial activity in both countries. A list of sector support operations financed by the World Bank is provided in table 1.

**Table 1. Recently Closed and Ongoing Energy Sector Projects, Supported by World Bank in Tanzania**

Name of Project	Implementation Status	Sector Area Focus
First Power and Gas Development Policy Operation (P143645)	Closed in FY2014	Power and Gas Sector Policy Development
Second Power and Gas Development Policy Operation (P145254)	Closed in FY2015	Power and Gas Sector Policy Development
Tanzania Energy Development and Access Expansion Project (P101645)	Closed in FY2018	Transmission and Distribution Network Expansion and Reinforcement
Tanzania BTIP (P111598)	Closed in FY2017	High-voltage Transmission Expansion
Tanzania Energy Sector Capacity Building Project (P126875)	Ongoing	Capacity Building of Sector institutions
Tanzania Rural Electrification Expansion Project (P153781)	Ongoing	Rural Electrification

23. **The World Bank FY2018–2023 Africa Regional Integration and Cooperation Assistance Strategy<sup>19</sup> (Strategy) identifies the energy sector as one of the four priority areas** where opportunities for deepening integration exist, building on the World Bank Group’s ongoing support and the priorities for regional economic integration. The proposed project supports the realization of the following

<sup>19</sup> Supporting Africa’s Transformation: Regional Integration and Cooperation Assistance Strategy for the Period FY18–FY23. December 2017.



objectives of the Strategy: Objective 2.1: Support priority regional generation and transmission links and Objective 2.2: Transform sub-regional power pools into effective commercially run entities actively enhancing power trade between countries.

24. **The proposed project is a flagship of TANESCO's five-year investment plan** that focuses on availability of power in the energy-starved south and southwestern provinces of the country, complemented by measures aimed at improving TANESCO's goals to undertake generation projects. It is expected that the successful implementation of this proposed project will contribute to the security and reliability of grid-based power supply and create conditions for power trade between east and southern Africa. The World Bank will, therefore, continue to engage in alleviating some of the constraints in the Tanzanian power system while maintaining its support for regional integration to provide access to the least cost reliable power for the countries in the region to advance and sustain their economic growth.

25. **The proposed project is one of the priority projects in both the EAPP and SAPP Master Plans.** It is designed as the key link for the interconnection of Tanzania to Kenya and Zambia, thus supporting the regional integration efforts in East and Southern Africa. More specifically, regional approaches to energy, such as this project, will help utilize the existing supply and production capacities in different countries to optimize new generation investments across the two sub-regions. The project will not only construct the physical infrastructure in Tanzania to increase power trade in the region but will also help rationalize and coordinate the multiple and sometimes conflicting power trade initiatives being discussed in the region by helping the countries prioritize key generation and transmission investments.

26. **The proposed project builds upon long-term experience of the World Bank in supporting capacity building and construction of physical infrastructure in the SAPP and West African Power Pool (WAPP).** The involvement of the World Bank in financing transmission interconnections in the WAPP countries allows achieving the completion of all planned cross-border interconnections by 2021. In the SAPP, the World Bank-supported Project Preparation Facility provides a basis for preparation of large regional infrastructure projects and facilitates commercial arrangements.

### C. Proposed Development Objective(s)

#### Development Objective(s) (From PAD)

27. The Development Objective for the Series of Projects is to establish cross-border transmission capacity between the Southern African Power Pool and the Eastern Africa Power Pool to enable regional power trade.

28. The Project Development Objective (PDO) is to (i) increase power transmission capacity to southern regions of Tanzania and (ii) strengthen institutional capacity in Tanzania and the Eastern Africa Power Pool for regional power trade.

#### Key Results

29. The PDO-level results indicators are the following:



- (a) Increased power transmission capacity along the Iringa-Kisada-Mbeya-Tunduma-Sumbawanga corridor (MW)
- (b) TANESCO's cross-border infrastructure for interconnection with SAPP completed (Yes/No)
- (c) Minimum standards met for installation of protection gear and metering for regional interconnection (Yes/No)
- (d) TANESCO's Enterprise Resource Planning (ERP) software installed and operational (Yes/No)
- (e) EAPP market rules adopted by the EAPP Steering Committee (Yes/No)

#### D. Project Description

**Component 1: Transmission Infrastructure Extension. (Estimated cost: US\$465 million: IDA - US\$335 million; AFD - US\$100 million; and European Union [EU] grant [expected, to be provided through AFD] - US\$30 million)**

30. This component includes construction of approximately 620 km of 400 kV double circuit transmission lines, starting in Iringa through Kisada and Mbeya to Tunduma and continuing from Tunduma to Sumbawanga to link the Tanzanian North-West Grid to the interconnector with Zambia. The Tunduma-Sumbawanga section of the transmission grid will be designed for double circuits, with only one circuit to be strung in the beginning due to expected lower loads in the Sumbawanga area during the short to medium terms. With respect to connection with Zambia, TAZA will terminate the 400 kV transmission line at the Tunduma substation, which is 4 km away from the Zambian border. The Tunduma substation will be equipped with switchgear for voltage conversion from 400 kV (high-voltage transmission standard in Tanzania) to 330 kV (high-voltage transmission standard in Zambia). The AFD applied for a US\$30 million grant co-financing from the EU to finance the installation of the 400 kV/ 330 kV switchgear at the Tunduma substation and construction of 4 km of the 330 kV transmission line from Tunduma to the Zambian border, completing the connection with the Zambian grid. IDA and AFD financing of Component 1 will cover the electrical and civil works, switchgear, control-protection-communication, supervisory control and data acquisition (SCADA), and auxiliary system equipment along the entire transmission route and in all substations, including required spares for transmission lines and substations.

**Component 2: TANESCO Transmission System Readiness for Interconnection and Corporate Commercial Management Improvements (Estimated cost: IDA US\$99 million)**

31. This component will have the following scope:

- (a) **TANESCO transmission system readiness for interconnection (US\$34 million).** This includes a technical assessment of TANESCO's transmission system to identify the operational, planning, and technical gaps in meeting the requirements for operational integration in the SAPP and the EAPP to comply with the requirements for power system stability, operational ancillary enabling services, frequency synchronization, tie-line control, protection, metering, and other technical standards, and procurement and installation of necessary additional



equipment (such as protection controls, automated generation controls, protection relays, and reinforcements of the generation/transmission system infrastructure to ensure that the Tanzanian grid meets all operating requirements of the interconnected networks, can synchronize with the EAPP and SAPP systems, and can engage reliably and efficiently in power trade with Zambia and Kenya and in the SAPP and EAPP markets (see annex 1 for more detailed description).

- (b) **Corporate commercial management improvements (US\$65 million).** This will support the integration of business systems as part of the Corporate Management System. The subcomponent specifically includes procurement, installation, and implementation support for the ERP to establish an unified system for managing core business processes, including automated financial reporting and billing (required within the power pool space), asset management, materials management, fleet control and management, centralized geographic information system (GIS) planning systems, integrated distribution SCADA to accurately forecast demand, and other services that are key for carrying out not only domestic energy service operations but, more importantly, commercial power pool trading transactions.

### **Component 3: Project Implementation Support and Capacity Building (Estimated cost: IDA US\$21 million)**

32. This component will support supervision and management of Component 1 by an owner's engineer and build TANESCO's technical, operational, and market trading capacity to participate in regional power trade. The proposed technical assistance to TANESCO includes financing of a contract for an owner's engineer for Component 1, training, and other capacity-building activities to prepare TANESCO for operating in and trading with the SAPP and EAPP. It also includes a TANESCO Technical Assistance Facility to facilitate the preparation of pipeline projects, both national and regional, and provide technical experts' support. Technical assistance to the MoE and EWURA also will be provided, based on the completed needs assessments, and procured through the TANESCO Technical Assistance Facility. Finally, capacity building of TANESCO's safeguards functions and gender mainstreaming will be supported through relevant training and a gender action plan.

### **Component 4: Technical Assistance to EAPP (IDA grant US\$ 10 million)**

33. This component will provide institutional strengthening and capacity building to the EAPP to establish market operating rules and platforms and set up technical requirements for operation of the EAPP utilities in a synchronized fashion. The Component 4 financing will cover (a) institutional strengthening and harmonization with the SAPP; (b) finalization of market design; (c) preparation of an Independent Regulatory Body (IRB) Strategic Plan, focusing on, but not limited to, harmonization of regulations, review of licensing regimes and grid connection requirements, determination of system security criteria, transmission pricing, and finalization of wheeling charge methodologies for electricity transit; and (d) the establishment of a regional technical assistance facility for national regulator capacity building and feasibility studies.

## **E. Implementation**



### Institutional and Implementation Arrangements

34. The project will be implemented over a six-year period. TANESCO (responsible for Components 1, 2, and 3) and the EAPP (responsible for Component 4) will be the implementing agencies for the project activities and will each be supported by dedicated technical assistance. TANESCO and ZESCO will coordinate on the transboundary infrastructure through a Joint Coordination Committee (JCC) which has already started to meet formally.

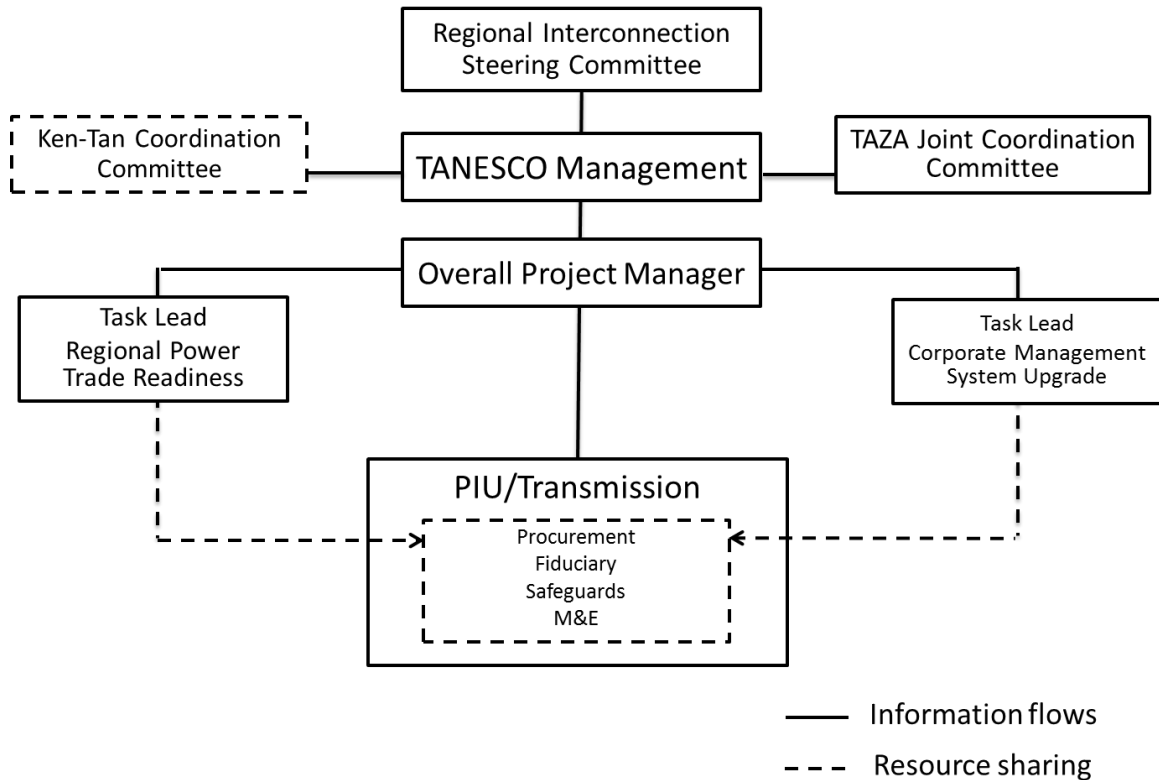
35. TANESCO has extensive experience in implementing World Bank projects over the past few years. Most recently, TANESCO has successfully implemented the BTIP (which was similar to the proposed project in terms of transmission infrastructure development) and TEDAP (an urban transmission and distribution project). TANESCO has implemented an IDA portfolio of about US\$230 million in the recent past. In addition, TANESCO is also implementing its allocation under the ongoing ESCBP. The implementation arrangements under the proposed project will build on this extensive implementation experience, including lessons learned. The detailed implementation arrangements will be described in the project implementation manual (PIM).

36. The project implementation arrangement in TANESCO will consist of a core Project Implementation Unit (PIU), headed by an overall project manager (OPM), and with staffing acceptable to the World Bank (details below). Specialized activities under Component 2 of the project will be carried out by specialized technical task teams (infrastructure regional power trade readiness and corporate management system upgrade and readiness). The overall project governance will be headed by a Regional Interconnection Steering Committee (RISC). Figure 2 describes the proposed implementation arrangements.





Figure 1. TANESCO Implementation Arrangement under the Project



37. The RISC will monitor the overall project implementation progress and address key issues related to sector and institutional readiness for interconnected grid operations—both to the EAPP and SAPP. The RISC will be chaired by the Permanent Secretary of the MoE or his/her designate. Members of the RISC will also include representatives from the Ministry of Finance and Planning, the management of TANESCO, and EWURA -TANESCO Managing Director and EWURA’s Director General or their designates. The RISC is expected to meet at least once every six months after the project effectiveness to ascertain TANESCO’s progress on achieving readiness for interconnection and provide guidance on strategic issues related to the interconnection of Tanzania to regional power pools.

38. A dedicated PIU, of a similar structure that was used under the BTIP and ongoing Kenya-Tanzania interconnector project, will be responsible for project implementation in TANESCO. The PIU will be responsible for procurement, fiduciary support, monitoring and evaluation (M&E), quality assurance, and safeguards oversight. TANESCO will appoint an OPM to head the PIU. The OPM will have the overall responsibility of the implementation of the project. The OPM will be assisted by four transmission engineers and two substation engineers responsible for each construction lot of the project. In addition, (a) a dedicated project accountant; (b) a dedicated safeguards and social risk team, including at least one environmental specialist, one social specialist, and one grievance redress mechanism (GRM) specialist (c) an M&E specialist; and (d) a procurement team, will assist the OPM. The PIU, especially the safeguards and social risk team, will be trained in issue related to gender-based violence (GBV) risks, prevention and response. The OPM will report to TANESCO’s management (Deputy Managing Director of Investment and Planning). In keeping with the normal reporting structures of TANESCO, the project accountant will report to the chief financial officer, who will report directly to the managing director; the environmental group



will also report to the senior manager of Strategic Planning and Projects, and the procurement unit will also report to the senior manager, procurement. Additional supervisors' counterpart staff to the supervision engineer will also be assigned by TANESCO, as required. This arrangement with TANESCO has worked well with previous World Bank energy projects (BTIP and TEDAP).

39. Specialized activities under Component 2 will have their dedicated task leads. The task leads for the regional power trade readiness task team/unit (Subcomponent 2.1) and the corporate management systems upgrade task team (Subcomponent 2.2) will report on activity progress to the OPM. Each task lead will be assisted by a technical team as required, but will use procurement, fiduciary, and safeguard capacity within the PIU established for Component 1.

40. Effective implementation of the ZTK interconnector, which includes the proposed TAZA project, will rely on two JCCs—one for TAZA under this project and another comprising TANESCO and KETRACO for the ongoing interconnection with Kenya. The TAZA JCC will ensure smooth coordination on project issues common to both countries. The role of the TAZA JCC will be coordination on design, procurement, and implementation. TANESCO and ZESCO have already been coordinating on planning and design issues as a part of the joint feasibility study funded by Nile Equatorial Lakes Subsidiary Action Program (NELSAP). This coordination arrangement is being formalized. Going forward the role of the committee will be the sharing of regular updates on implementation progress in both countries, discussion on any issues regarding coordination in implementation and subsequent operations. Coordination in procurement may be required for the short 4 km interconnection and associated 400/330 auto-transformation equipment for the Tunduma substation. These arrangements will be discussed during the committee meetings. The JCC shall also be responsible for the compilation and circulation of consolidated quarterly progress reports to the management of the two utilities and the respective governments. Reports of JCC meetings and agreements will be made available to the World Bank by the OPM.

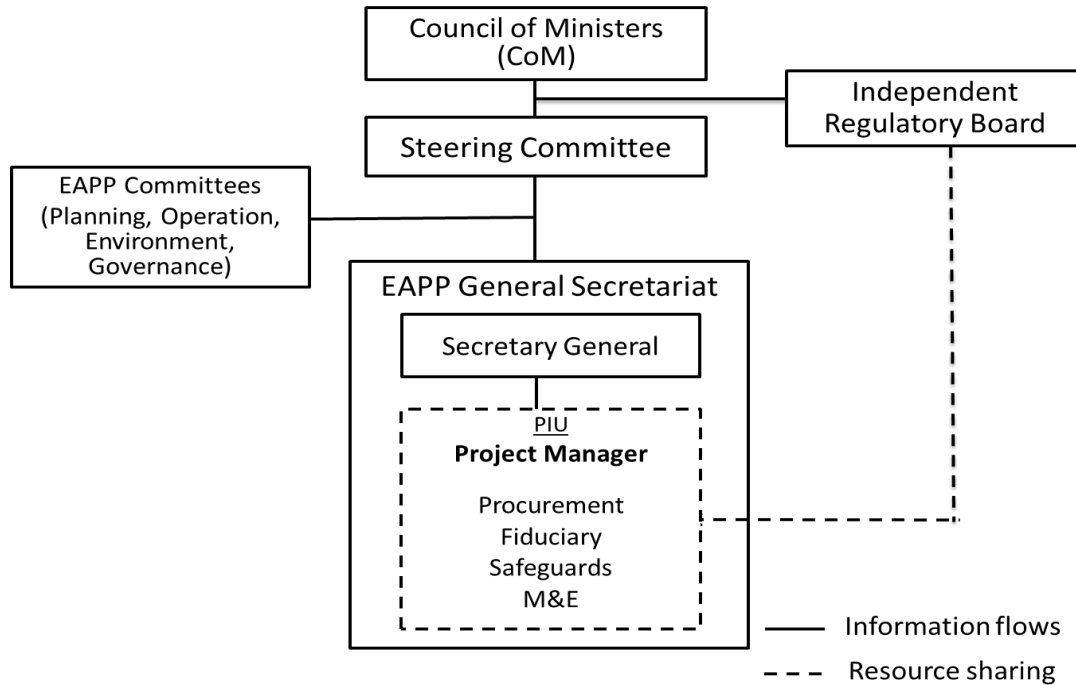
41. The EAPP Secretariat will be responsible for implementation of the Component 4. The EAPP will establish a PIU, headed by a project manager, and with a dedicated procurement specialist, a financial management (FM) specialist, and required technical experts. The PIU will report directly to the Secretary General of EAPP. Technical assistance support for the IRB, the activities will be managed by the head of the IRB and will leverage procurement and FM resources residing in the PIU. The implementation arrangement within the EAPP will be in accordance with normal reporting and governance structure of the EAPP. Thus, overall governance of activities carried out by the EAPP lies with the Steering Committee of the EAPP that is constituted by the chief executive officers or managing directors of member utilities.<sup>20</sup> The Council of Ministers, comprising the Ministers of Energy of member countries, is the overall governing body of the EAPP that decides on and resolves any matters of strategic regional importance. The Steering Committee typically meets twice a year and the Council of Ministers meets once a year.

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<sup>20</sup> During the Council of Ministers meeting held in February 2018, the Council adopted a resolution to expand the membership of the Steering Committee to include Permanent Secretaries of the respective ministries.



Figure 2. EAPP Implementation Arrangements Under the Project



42. As the EAPP does not have prior experience in implementing World Bank-financed projects. Detailed fiduciary assessments, including procurement, FM, safeguards, and fraud and corruption, were carried out during the project preparation. Results of these assessments and a subsequent capacity strengthening plan, are presented in annex 2. Ongoing support under the World Bank-executed MDTF will also put in place technical and fiduciary capacity building to enable the EAPP to meet the requirements of an implementing agency under the project and execute its activities with efficiency and efficacy.

**F. Project location and Salient physical characteristics relevant to the safeguard analysis (if known)**

The Iringa-Mbeya segment of the line is in Tanzania’s Southern Highlands. Most of the Mbeya-Sumbawanga segment lies in the Great Rift Valley. Vegetation cover is miombo woodland (a grassland-savanna-scrubland biome), grassland, bush, cropland and plantations. The proposed alignment does not pass through any protected areas, but the line from Iringa to Mbeya runs along or near the boundaries of the Mpanga/Kipengere Game Reserve (MKGR), the Chimala Scarp Forest Reserve, and two Important Bird Areas. It traverses the Igambo-Igawa Wildlife Corridor that links the MKGR and Ruaha National Park.



G. Environmental and Social Safeguards Specialists on the Team

Thomas E. Walton, Environmental Safeguards Specialist
Mary C.K. Bitekerezoo, Social Safeguards Specialist
Jane A. N. Kibbassa, Environmental Safeguards Specialist
Ekaterina Romanova, Social Safeguards Specialist

SAFEGUARD POLICIES THAT MIGHT APPLY

Table with 3 columns: Safeguard Policies, Triggered?, and Explanation (Optional). Row 1: Environmental Assessment OP/BP 4.01, Yes, The project was originally classified as Category A for environmental assessment because of its length, its proximity to protected areas and other important habitat, its passage through a wildlife migration corridor, and the amount of land to be acquired for its wayleave. Environmental assessment identified loss of vegetation cover and wildlife habitat, disturbance of wildlife migration, bird and bat collisions with conductors, land acquisition, and interactions of up to 800 workers (approx. 30 percent of these will be coming from outside the project area) in at least three workers' camps with the environment and local communities as potential impacts that confirm the appropriateness of the Category A classification. An ESIA has been prepared by an international consultant for the Iringa-Mbeya segment of Component 1 under the Nile Equatorial Lakes Subsidiary Action Program (NELSAP) of the Nile Basin Initiative and reviewed and approved by NELSAP and NEMC. Bank safeguards policies were taken into account in its preparation. The Bank project team participated in the NELSAP review process. An ESIA has also been prepared for the Mbeya-Sumbawanga segment of Component 1 and approved by NEMC. The Iringa-Mbeya ESIA has been updated, since it was issued in 2012. The Mbeya-Sumbawanga ESIA, which was prepared by TANESCO when bilateral funding was contemplated, needed more substantial revision to be brought into conformance with Bank policies. Apart from temporary impacts during construction, such as



noise, dust, pollution from oil and fuel spills and construction camp wastes, potential social conflict between “foreign” workers and local communities, the ESIA’s list the main adverse impacts as: bird collisions with conductors, loss of vegetation cover that is habitat for small animals, fragmentation of habitat, disturbance of migrating animals, transmission of HIV/AIDS, and impairment of agriculture-based livelihoods. Four alternative alignments were evaluated on environmental, social, and technical grounds for the Iringa-Mbeya section of the line. Although the preferred option had a higher overall number of project-affected people, it has the lowest physical resettlement impact on people’s houses and assets, as well as avoiding impact on public buildings such as schools and churches. It also has the lowest area of permanent loss of land, the least impact on land use and tree crops production. It would have the lowest resettlement/land acquisition cost. While it and one other alternative would involve the lowest loss of vegetative cover, it is inferior to the other three in terms of impact on wildlife and to two of the others with respect to bird collision risk Both ESIA’s and a joint Executive Summary have been disclosed in country and on the Bank’s website. 1. They cover all associated facilities.

Feasibility studies prepared under Subcomponent 3.2 and Component 4 will need to take Bank safeguards policies into account. The TORs for feasibility studies under Subcomponent 3.2 and Component 4 will be reviewed and approved by the Bank. Subcomponent 3.1 will have no impacts.

The project is not expected to cause conversion or degradation of any critical natural habitat, and much of the land that will be acquired for it is modified habitat. Direct impacts on natural habitat (mostly bush, scrub, shrubland and grassland) can be mitigated through selective clearing. The proposed alignment does not pass through any protected areas, but the line from Iringa to Mbeya runs along or near the boundaries of the Mpanga/Kipengere Game Reserve (MKGR) and the Chimala Scarp Forest Reserve. It passes between two Important Bird Areas, one 13 km to the south and the other 10 km to the north. It traverses the Igambo-Igawa Wildlife

Natural Habitats OP/BP 4.04

Yes



		<p>Corridor that links the MKGR and Ruaha National Park, which is 26 km north of the line. Indirect impacts on the MKGR and Chimala Scarp Forest Reserve could include hunting by workers and improved access for poachers. Mitigation measures will be required for those impacts and for potential loss of biodiversity caused by bird collisions and disturbance of wildlife movement, particularly in the Igambo-Igawa Wildlife Corridor.</p>
Forests OP/BP 4.36	No	<p>The policy is not triggered for several reasons. Although the alignment is adjacent to the Chimala Scarp Forest Reserve and the MKGR, it remains outside their boundaries. The Igambo-Igawa Wildlife Corridor has been disturbed by human activities including cultivation, grazing, and charcoal burning. The potential impacts on those areas will be managed in accordance with OP 4.04. Miombo woodland is not considered forest. The project will thus not convert natural forest, nor will it support forest conversion, forest harvesting, or forest management.</p>
Pest Management OP 4.09	No	<p>The project will not fund procurement of pesticides or cause increases in pesticide usage. TANESCO does not use herbicides for wayleave clearing or maintenance.</p>
Physical Cultural Resources OP/BP 4.11	Yes	<p>Village graveyards are present within the proposed transmission line corridor. 315 graves in the Iringa-Mbeya section of the transmission line and another 117 graves in the Mbeya substation land lot have been identified during project preparation to be impacted. More graveyards to be impacted will likely be identified in the remaining section of the transmission line where the exact alignment is not yet finalized. Graves reburial will be conducted in accordance with OP 4.12 and the applicable Tanzanian law. The process of relocating graveyards is detailed in the RPF and RAP(s) prepared under the project. The proposed alignment avoids the one known archaeological site at Isimila near Iringa. A chance-finds procedure are included in the ESIA's and will be reflected in constructors' contracts in case other physical cultural resources are discovered during line or substation construction.</p>



Indigenous Peoples OP/BP 4.10	No	<p>There are no known indigenous peoples as defined in the policy in the project-affected area. Due diligence assessments were conducting in July 2017 for the Iringa-Mbeya transmission line segment and in December 2017 for Mbeya-Sumbawanga transmission segments to verify that no IPs, as defined in the WB policy, reside in the project area.</p>
Involuntary Resettlement OP/BP 4.12	Yes	<p>Civil works under Component 1 will result in acquisition of ROW for the transmission line and land plots for the four substations. According to national law, TANESCO will carry outright purchase of the ROW and no use of land, except grazing will be allowed. The ROW will be 52 m in width, except in sections where the ROW overlaps with the ROW of other transmission lines. Prior to Project Appraisal, a Resettlement Action Plan (RAP) for Iringa-Mbeya segment, where the exact alignment of the transmission line is known, has been prepared. The RAP estimates that 1,747 PAPs will be impacted, out of which 48 PAPs will be physically resettled, as well as 315 graves will need to be reburied. A Resettlement Policy Framework (RPF) for Mbeya Sumbawanga transmission line stretch, where the alignment and, consequently, the scale of impact, is not yet finalized, has been prepared. The RAP for the Mbeya-Sumbawanga segment will be prepared immediately after the sitting of the line is determined. A Resettlement Audit and Corrective Action Plan for the Mbeya substation area, where TANESCO has acquired a land lot prior to the Bank's engagement, has also been conducted. The Resettlement Audit has confirmed that 139 PAPs stand to be economically impacted. Out of these, 2 households will also need to physically relocate. While all PAPs but one received compensations, most of them remained in the area and continued use of land, because TANESCO has not enforced land clearance. The Resettlement Audit has concluded that the land acquisition and compensation payment followed national requirements and there are gaps with the WB policy on Involuntary Resettlement. The Corrective Action Plan included in the Resettlement Audit, sets forth measures to address these gaps. Based on the findings of the Audit, it's been agreed that a full remedial action plan (ReAP) in line with the Audit's Corrective Action and the RPF will be</p>





		prepared to meet the Bank policy requirements. PAPs in the Mbeya substation land lot will be allowed to utilize their land and remain in their homes, until the ReAP is implemented in full to the satisfaction of the Bank and ahead of the start of any civil works on the Mbeya substation.
Safety of Dams OP/BP 4.37	No	The project does not involve construction or rehabilitation of dams, nor does it depend on any existing dam.
Projects on International Waterways OP/BP 7.50	No	The project will have no impact on the quality or quantity of water in any international waterway.
Projects in Disputed Areas OP/BP 7.60	No	The project is not located in any disputed territory.

**KEY SAFEGUARD POLICY ISSUES AND THEIR MANAGEMENT**

**A. Summary of Key Safeguard Issues**

1. Describe any safeguard issues and impacts associated with the proposed project. Identify and describe any potential large scale, significant and/or irreversible impacts:

The project is expected to have significant adverse environmental and social impacts in the project area as it traverses through extensive territory impacting loss of wildlife habitat and resulting in significant displacement. These impacts are addressed through a number of safeguards instruments. The two ESIA's outline environmental and social impacts in the project area and include ESMPs that contractors will be required to implement throughout the project cycle. RPF and RAP(s) address involuntary land acquisition and resettlement that will occur as a result of the project activities under Component 1. The Resettlement Audit and Corrective Action Plan, and Remedial Action Plan (ReAP) to be prepared, address legacy issues and mitigation measures to meet the WB policy requirements per OP 4.12. Key environmental issues during construction include impacts of vegetation clearing for wayleave and access roads, safety risks and damage to local infrastructure from movements of heavy equipment and materials, and risks to workers from working at height. During operation, key environmental risks are loss of wildlife habitat in the wayleave, disturbance of wildlife migration caused by establishment and periodic maintenance of the wayleave, and bird and bat collisions with conductors. One of the two main areas of potential social impact is the risk of undesirable interactions between the construction workers (approximately 800 at the peak level, with around 30 percent of those, workers from outside of the project area, who will be housed in at least three workers' camps) and local residents; gender-based violence, sexual exploitation and abuse, transmission of HIV/AIDS and other communicable diseases, and cultural clashes are possible. The other potential social impact is loss of land, assets and livelihood that may be experienced by those residing in the direct area of the right of way. In the Iringa-Mbeya section of the transmission line (292.2 km of 613 km), where the alignment and impact are known, the RAP estimates 1,747 PAPs to be impacted (including 48 PAPs needing to physically relocate) and 315 graves to be reburied. The land acquisition that has already occurred for the Mbeya substation area, will impact 139 PAPs, including 2 households needing to physically relocate, and 177 graves stand to be impacted. The impact in the remaining part of the transmission line is expected to be comparable or even greater given a longer stretch between Mbeya and Sumbawanga to Zambia border.

2. Describe any potential indirect and/or long term impacts due to anticipated future activities in the project area: To the extent that the presence of the line and its wayleave adversely affect movement of wildlife, this will be a long-



term impact due to the anticipated operating life of the line. Potential indirect impacts include: poaching, illegal wood cutting, and land clearing in natural habitat including protected areas that become more accessible because of the wayleave and its access roads; and changes in animal populations in a game reserve and Grand Ruaha National Park if the line disturbs movement through the migration corridor between them.

3. Describe any project alternatives (if relevant) considered to help avoid or minimize adverse impacts.

Four alternative alignments for the transmission line, two alternative locations for the Mbeya substation, and the no action alternative were considered during project preparation and addressed in the ESIA. The selected alignment requires substantially fewer families to be resettled compared to the other three. However, it will require more attention to mitigation of environmental impacts in comparison to two of the other options. The location originally planned for the Mbeya substation and its associated incoming and outgoing transmission lines would have had a significant impact in terms of land acquisition and resettlement; the new site selected has a much smaller social impact. Alternative tower configurations will be employed in areas of elevated bird collision risk to minimize collisions by keeping conductors in a horizontal rather vertical plane.

4. Describe measures taken by the borrower to address safeguard policy issues. Provide an assessment of borrower capacity to plan and implement the measures described.

TANESCO has prepared ESIA for the transmission line and substations, a RAP for the line segment between Iringa and Mbeya, and an RPF for the segment between Mbeya and Sumbawanga to Zambia border. Additionally, a Resettlement Audit and Corrective Action Plan has been prepared for the Mbeya substation area, where TANESCO has acquired a lot prior to the Bank's engagement and did not have a RAP in place. The Corrective Action Plan does not fully address all necessary mitigation measures to meet the gap between legacy land acquisition and Bank policy requirements, hence a full Remedial Action Plan (ReAP) will be prepared. ReAP will consider the findings and recommendations of the Resettlement Audit and Corrective Action Plan, and will be prepared in line with the RPF. RAP(s) for Mbeya to Sumbawanga and Tunduma substation to the Tanzania-Zambia border transmission line segments will be prepared as soon as the exact siting of the line is finalized. The ESIA spell out the responsibilities with regard to the implementation of the Environmental and Social Management Plan (ESMP), the Health and Safety Plan (H&S Plan), and the Influx Management Plan to be prepared and implemented by the contractors and reviewed by TANESCO and the Bank, and the supervising responsibilities of the supervision consultant with regard to implementation of the ESMP and the various subordinate plans. The ESIA include commitments by TANESCO to engage specialists for preparation of a Wildlife Corridor Management Plan, additional studies of bird and bat movements along the corridor, and cumulative assessment of potential impacts on the wildlife corridor and protected areas along the transmission line, all to be completed and reviewed by the Bank prior to construction and to be considered in final design. The ESIA for the Mbeya-Sumbawanga segment includes a chapter describing a proposed 4-km addition to the transmission line from the Tunduma substation to the border with Zambia, which was added to the project too late to be fully taken into account in the ESIA. TANESCO will make a complete social and environmental impact assessment of this new segment and amend the ESIA with the results. TANESCO will update both ESIA and their respective ESMPs based on the above-mentioned additional studies, TORs for which will be approved by the Bank. TANESCO will submit the studies to the Bank for review and clearance prior to issuing invitations for bids on construction of the line so that they can be incorporated in bidding documents and contracts. All studies and consultancies related to technical assistance, design and capacity building under the Project that may have environmental or social implications, will follow the Bank's safeguards policies. The TORs for such studies will need to be approved by the Bank.

TANESCO has an 18-person Safeguards unit that consists of the manager, six environmental officers/technicians, six surveyors, one surveyor technician, and four social scientists. In the implementation of the Backbone Transmission Development Project (BTDP) and the on-grid component of Tanzania Energy Development and Access Project (TEDAP), the department has demonstrated sufficient capacity to implement projects in compliance with World Bank



environmental safeguards policies. A recent turn over of the safeguards team management and staff, as well as a review of TANESCO's compliance with Bank policies indicated a need for better record keeping and monitoring particularly of resettlement activities. Under the project, it is expected that there will be designated specialists to oversee environmental and social requirements, as well as to operate a GRM. These specialists will be either recruited or selected from within the TANESCO safeguards team. Additionally, capacity building measures will be a part of the project.

5. Identify the key stakeholders and describe the mechanisms for consultation and disclosure on safeguard policies, with an emphasis on potentially affected people.

The most directly affected stakeholders are families that will have portions of their land acquired for the wayleave. Residents of communities along the transmission line are also directly affected stakeholders. District and zonal governments, managers of game and forest reserves adjacent to the line, national agencies such as TANROADS, academic and research institutes (particularly those concerned with wildlife), and NGOs interested in environmental or social issues are on the list. More broadly, present and potential TANESCO residential, commercial, government and industrial customers in underserved districts in southern and western Tanzania will benefit from high-voltage transmission of power into the area, which contains a number of the poorest communities in Tanzania.

During preparation of the Iringa-Mbeya ESIA in 2012, consultations were conducted in 53 villages along the proposed transmission line corridor, and in Dar es Salaam with NEMC, TANROADS, Ministry of Natural Resources and Tourism (Forestry and Beekeeping Division, Wildlife Division, Division of Antiquities), and NGOs. Additional consultations were conducted in communities in January 2018 by TANESCO. On September 12, 2017, a large public/government agency meeting was held in Dar es Salaam to discuss both ESIA's and the terms of reference for the revision of the Mbeya-Sumbawanga ESIA. Public consultations for the revision of that ESIA took place at eighteen locations between Mbeya and Sumbawanga during November 13-17, 2017, and TANESCO conducted additional consultations on the draft ESIA January 13-21, 2018. Consultations were also held with village authorities and Project Affected People in March, 2018, during the preparation of resettlement instruments. TANESCO will prepare a Stakeholder Engagement Plan before recruiting contractors. SEP will be approved by the World Bank and implemented throughout the project. Regular consultations with various stakeholders will be complemented by availability of a Grievance Redress Mechanism – an update of the GRM it already has in place – for management of continuing communication and consultation during construction and operation of the transmission line.

**B. Disclosure Requirements**

**Environmental Assessment/Audit/Management Plan/Other**

Date of receipt by the Bank	Date of submission for disclosure	For category A projects, date of distributing the Executive Summary of the EA to the Executive Directors
31-Jan-2018	31-Jan-2018	23-Mar-2018

**"In country" Disclosure**

Tanzania  
31-Jan-2018

Comments



The ESIA's have been disclosed on TANESCO's website. Hard copies of the document are also available in the Project Area. The revised final ESIA for Mbeya to Sumbawanga, originally disclosed on January 31, 2018, have been redisclosed by TANESCO and the World Bank on April 11, 2018. The updated version also covers a 4 km stretch of the line that goes from the Sumbawanga substation to the TZ-ZA border.

**Resettlement Action Plan/Framework/Policy Process**

Date of receipt by the Bank

13-Apr-2018

Date of submission for disclosure

13-Apr-2018

**"In country" Disclosure**

Tanzania

13-Apr-2018

**Comments**

The RAP was disclosed on TANESCO's website and a local newspaper on April 13, 2018. The RPF for Mbeya-Sumbawanga and for Tunduma s/s to TZ-ZA border sections of the transmission line was disclosed in-country and on the WB website on April 14, 2018. The Resettlement Audit and Corrective Action Plan, addressing legacy resettlement in the Mbeya substation area, was disclosed on TANESCO's website on April 17, 2018. All three documents were disclosed in an electronic form in English. Hard copies of the documents in English and executive summaries in Kiswahili are available in the project affected area.

**C. Compliance Monitoring Indicators at the Corporate Level (to be filled in when the ISDS is finalized by the project decision meeting)**

**OP/BP/GP 4.01 - Environment Assessment**

Does the project require a stand-alone EA (including EMP) report?

Yes

If yes, then did the Regional Environment Unit or Practice Manager (PM) review and approve the EA report?

Yes

Are the cost and the accountabilities for the EMP incorporated in the credit/loan?

Yes

**OP/BP 4.04 - Natural Habitats**

Would the project result in any significant conversion or degradation of critical natural habitats?

No

If the project would result in significant conversion or degradation of other (non-critical) natural habitats, does the project include mitigation measures acceptable to the Bank?

Yes



**OP/BP 4.11 - Physical Cultural Resources**

Does the EA include adequate measures related to cultural property?

Yes

Does the credit/loan incorporate mechanisms to mitigate the potential adverse impacts on cultural property?

Yes

**OP/BP 4.12 - Involuntary Resettlement**

Has a resettlement plan/abbreviated plan/policy framework/process framework (as appropriate) been prepared?

Yes

If yes, then did the Regional unit responsible for safeguards or Practice Manager review the plan?

Yes

**The World Bank Policy on Disclosure of Information**

Have relevant safeguard policies documents been sent to the World Bank for disclosure?

Yes

Have relevant documents been disclosed in-country in a public place in a form and language that are understandable and accessible to project-affected groups and local NGOs?

Yes

**All Safeguard Policies**

Have satisfactory calendar, budget and clear institutional responsibilities been prepared for the implementation of measures related to safeguard policies?

Yes

Have costs related to safeguard policy measures been included in the project cost?

Yes

Does the Monitoring and Evaluation system of the project include the monitoring of safeguard impacts and measures related to safeguard policies?

Yes

Have satisfactory implementation arrangements been agreed with the borrower and the same been adequately reflected in the project legal documents?

Yes

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**APPROVAL**

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**Approved By**

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Practice Manager/Manager:	Sudeshna Ghosh Banerjee	18-Apr-2018
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**Note to Task Teams:** End of system generated content, document is editable from here. *Please delete this note when finalizing the document.*