



Ministry of Foreign Affairs

Final Energy report Tanzania

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International.*

Report Tanzania



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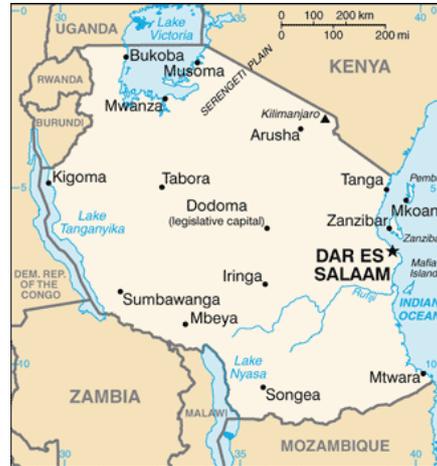
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The information is checked with other sources. The information in Chapter 7 is based on interviews with several experts.

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1. Tanzania general overview



Official name	United Republic of Tanzania
Area (km ²)	947.300 (23x Nederland)
Land Area (km ²)	885.800 (26 x Nederland)
Population	53.950.935 (3 x Nederland)
GDP per capita (2016 est) (WB)	\$ 877
Agriculture	coffee, sisal, tea, cotton, pyrethrum (insecticide made from chrysanthemums), cashew nuts, tobacco, cloves, corn, wheat, cassava (manioc, tapioca), bananas, fruits, vegetables; cattle, sheep, goats
Industry	agricultural processing (sugar, beer, cigarettes, sisal twine); mining (diamonds, gold, and iron), salt, soda ash; cement, oil refining, shoes, apparel, wood products, fertilizer
CO ₂ emissions (tCO ₂ /capita)	0.22
Price of electricity (US cents/kWh)	13.3

Source: CIA Factbook, World Bank and Doingbusiness.org

2. Energy overview

Overview of the energy sector/General description

Tanzania's power sector is dominated by state-owned Tanesco, which owns most of the country's transmission and distribution network and more than half of its generating capacity. Tanzania's second Five-Year Development Plan (FYDP II), unveiled in June 2016, foresees a six-fold expansion of the power grid over the next decade. The plan sets a top-line installed base target of 10GW by 2025/26 – up from only 1.5GW in 2015. [3]

Biomass provides 83% of the total energy consumption which means that in the rural areas biomass is mainly used as fuel for cooking and heating.

Primary energy use/Energy supply

Total Primary Energy Supply	ktoe
Coal	158
Crude Oil	0
Oil products	3089
Natural gas	731
Nuclear	0
Hydro	181
Geothermal, solar, wind, etc.	2
Biofuels and waste	21801
Electricity	6
Heat	0
Total	25968

Source IEA Statistics 2015

Energy consumption

Total final consumption	ktoe
Coal	158
Crude Oil	0
Oil products	2655
Natural gas	138
Nuclear	0
Hydro	0
Geothermal, solar, wind, etc.	0
Biofuels and waste	19062
Electricity	452
Heat	0
Total	22465

Source IEA Statistics 2015

Electricity use per sector

The main energy users in Tanzania are the residential sector (biomass for cooking and heating), the electricity sector and transport sector.

Final Electricity Consumption	GWh
Industry	1362
Transport	0
Residential	2372
Commercial and Public Services	1181
Agriculture/Forestry	178
Fishing	0
Other non-specified	156
Finale Electricity Consumption	5249

Source IEA Statistics 2015

Electricity production

Electricity production	GWh
Coal	0
Oil	1381
Gas	2764
Biofuels (solid biofuels)	21
Waste	0
Nuclear	0
Hydro	2108
Geothermal	0
Solar PV	21
Solar thermal	0
Wind	0
Tide	0
Other sources	0
Electricity production	6295

Source IEA Statistics 2015

Transmission and distribution

Tanzania's power sector is dominated by state-owned Tanesco, which owns most of the country's transmission and distribution network and more than half of its generating capacity. [3]

The transmission and distribution system comprises of 48 transmission substations interconnected by transmission lines, 3,340 km of 220 kV, 2,063 km of 132 kV, 668 km of 66 kV, 24,165 km of 33 kV, 6,006 km of 11 kV and 71,629 km of 400 and 230 kV lines. Current transmission and distribution losses are at 16.4%. Beyond the grid, Small Power Producers (SPP) are responsible for the management of isolated micro- and mini-grids. Several development projects are in place to extend and upgrade the transmission and distribution sectors to cope with expanding demand and supply,

to interconnect the isolated supply network, to increase international electricity trade with neighboring countries and to improve the general reliability of the system. [1]

Tanzania’s second Five-Year Development Plan (FYDP II 2011-2016), unveiled in June 2016, foresees a six-fold expansion of the power grid over the next decade. The plan sets a top-line installed base target of 10GW by 2025/26 – up from only 1.5GW in 2015. [3]

It includes 10 network projects for a total investment of almost 4 trillion TZS (ca 1,7 billion Euro). The process of interconnecting the grid along with upgrading power lines is expected to be complete by 2019. [1]

Access to electricity (2015)	% of the population
Electrification total %	33 %
Electrification urban areas %	65 %
Electrification rural area %	17 %
Access to clean cooking	2 %

Source TRACKING SDG7: THE ENERGY PROGRESS REPORT 2018

Off-Grid Electrification

TanESCO has a total off-grid generation capacity of 82 MW from 18 isolated mini-grids. Two mini-grids that run on natural gas account for 29 MW with the remaining 53 MW sourced from diesel generators. Tanzania has a preference for electrification through grid connections though acknowledges the role that off grid solutions can provide given network expansion timeframes. One study has concluded that the grid connection plan would electrify about 5,500 settlements by the end of 2022, with 6,000 further settlements remaining as candidates for off-grid electrification or disseminated technologies. Against this backdrop the current electrification rate mean that many Tanzanian households continue to rely on kerosene lamps, 58.4% according to the National Bureau of Statistics. In conjunction with a widely dispersed population these factors make a compelling case for off-grid energy solutions. [1]

Larger scale mini-grid systems are under development from various private sector players exploiting solar, hydro and biomass sources that are gaining interest from the Government and development agencies. A prime example being the support offered through Rural Energy Agency (REA) based on DFID and SIDA funding that offers results based finance for green mini and micro grids. [1]

3. Renewable energy

Tanzania has a high and mostly untapped potential for renewable energy sources. The only resource significantly in use is hydropower at a large scale. Additionally, small hydropower has good potential and is particularly feasible in rural areas.

Biomass resources are mostly exploited in traditional, but unsustainable ways though there remains great potential due to large amounts of organic waste generated from the agricultural sector.

Solar energy is abundant with initial efforts being undertaken to exploit this resource through both off-grid and grid-connected solutions. Wind resources have been assessed with results showing promise with plans for developments underway. The World Bank is mapping renewable energy resources within their ESMAP Programme. [1]

Bio-energy

Biomass provides 83% of the total energy consumption which means that in the rural areas biomass is mainly used as fuel for cooking and heating. In the rural areas biomass (mainly wood) is used to produce charcoal which is sold in the urban areas as largest source of household energy.[2]

Charcoal is the single largest source of household energy in urban areas and (roughly estimated, assuming primitive kilns) represents 20% of total energy use. The proportion of households in Dar es Salaam using charcoal has increased and is now above 70%. Approximately half of Tanzania's annual consumption of charcoal takes place in Dar es Salaam, amounting to 500,000 tons for 2009 approximately.[2]

Currently, there is only one grid-connected biogas plant (18 MW) in place. However, several agro-industrial companies have constructed captive power systems based on biomass to generate electricity for their operations. The potential for modern biomass uses is high, considering that the raw material available is abundant and includes sugar bagasse (1.5 million tons per year), sisal (0.2 MT/year), coffee husk (0.1 MTPY), rice husk (0.2 MT/year), municipal solid waste (4.7 MT/year) and forest residue (1.1 MT/year).[1]

Wind

Potential areas for wind parks have been mapped by Tanesco. There are several areas in the country, predominantly along the coast, with attractive wind speeds. [2]

Kititimo (9.9 m/s average wind speed at 30m) and Makambako (8.9 m/s) having been identified as having adequate wind speeds for grid-scale electricity generation. The Ministry of Energy and Minerals (MEM), in collaboration with Tanesco, is conducting wind resource assessments on eight further sites throughout the country. In addition the Rural Energy Agency (REA) supports wind measurements on Mafia Island. To date, four private companies have expressed interest in investing in wind energy, considering construction of farms in the 50–100 MW range. [1]

Solar

Tanzania has promising levels of solar energy, ranging between 2,800 and 3,500 hours of sunshine per year and a global horizontal radiation of 4–7 kWh per m² per day. Solar radiation is particularly high in the central region of the country. [1]

Some solar developers are seeking to set up large solar PV projects. [2]

To date, about 6 MW of solar off-grid PV has been installed countrywide. PV installations are generally used at villages, schools, hospitals, health centers, police stations, small telecommunications enterprises and households, as well as for lighting, street lighting and basic electricity needs. The government, through the REA and various donors, has supported a number of solar PV expansion programs. One grid-connected PV plant has been commissioned to date. The 1 MW-plant produces about 1,800 MWh/year. The potential for grid-connected solar PV is estimated to amount to 800 MW.

In the short-term, the Power System Master Plan (PSPM) 2007-2031 envisages the construction of 120 MW of PV capacity by 2018. Several private companies have expressed interest in developing 50–100 MW solar plants. [1]

Lighting Africa supports the development of a commercial market for quality-verified solar lanterns and solar home systems in the country with a target to reach 6.5 million people by end 2019. These efforts have been further enhanced by Government support through VAT and tariff exemptions for imports of small solar products assisting companies with business models pegged to mobile phone Pay-As-You-Go (PAYG) financing schemes. In addition larger scale mini-grid systems are under development from various private sector players. [1]

Hydro

Hydroelectricity is the most important indigenous source of commercial energy, with a recognised potential of 4.7 GW of installed capacity and 3.2 GW of firm capacity. Only 15% of the potential installed capacity has been developed and several projects are currently soliciting funding. Geographically, the hydro power potentials of Tanzania are located in the Rift Valley escarpments in the West, Southwest and Northeast regions of Tanzania. The planned large-scale hydropower generation sources include Ruhudji (360 MW), Rumakali (220 MW), and Stieglers Gorge (2,100 MW). The latter may have the potential to produce enough electricity to justify investments in extending the national grid, and has been under discussion for decades due to a number of environmental and social issues. [2]

Traditionally hydropower has been the main source for electricity in Tanzania, however intermittent river flows have decreased its reliability. Another key challenge facing hydropower is the regional mismatch between hydro sites and major demand centers with a strengthening transmission system a requirement for further development. Tanzania does intend to further develop its large-hydro capacity with estimated potential calculated as high as 4,000 MW. The Power System Master Plan (PSMP) includes 16 projects with a combined capacity of 3,000 MW to be finalized by 2031.

Of the presented installed grid connected capacity, two small-scale hydro power plants are owned by Tanesco (Nyumba ya Mungu 8MW, Uwemba 4MW), and a further two by private developers (Mwenga 4MW, Yovi 1MW). Beyond these existing developments Tanzania has significant small hydropower potential (installed capacity <10 MW) estimated at 315 MW. Further site level assessments undertaken by Tanesco and financed by Ministry of Energy and Minerals have identified 131 specific small hydro sites across the country. Complimentary economic analysis has concluded that a number of sites are commercially viable for generating electricity for the national or mini-grids. [1]

Geothermal

There is a high potential for geothermal power generation in Tanzania, with temperatures of up to 255°C (dry steam). At least 15 thermal areas with hot spring activity could be justifiable development projects. The total potential geothermal power in 50 identified sites is 650 MW. The Songwe site in Mbeya region alone has an estimated potential of 100 MW of electricity. At issue is that some of the

identified sites, such as Lake Natron, are in or near reserves such as Lake Manyara and Ngorongoro. Geothermal exploitation involves changing the flows of underground water, which in some cases have led to draining of nearby lakes. [2]

4. Energy efficiency

Primary energy demand per capita was 0.45 ktoe in 2009. The residential sector contributes most to energy consumption in the country (72% in 2009), mainly due to the large amounts of biomass consumed for heating, lighting and cooking. Further development of the national electricity grid, leading to improved electricity services for households, would reduce this consumption greatly. Small-scale energy efficiency projects have been conducted in the country, for example aggregated purchasing schemes for energy-efficient electrical equipment, however, no governmental projects are currently under-way in the sector. Energy efficiency initiatives in the country are often hindered by limited capacity in strategic planning at ministerial levels, a lack of awareness, a lack of financial resources for investing in efficient equipment, a shortage of technical capacity to disseminate the skills and adaptation of the technologies, and other issues. [2]

Although, to date, the country has no comprehensive policy, instrument or strategy targeting Energy Efficiency (EE), the Government of Tanzania (GoT) is beginning to address this issue through the implementation of programmes and projects at an institutional level and in cooperation with several Development Partners. Targets to improve transmission and distribution efficiency in the power sector, petroleum consumption and electricity consumption in manufacturing industries and households, are set in the MEM Strategic Plan 2011/12-2015/16. [4]

Power system losses in Tanzania were at 16.4%. [1] Tanesco has put in place a Loss Reduction Programme which is currently being implemented. Related to that but on demand side management, Tanesco has established a dedicated unit which aims at targeting large power consumers. The objective is to persuade them to shift their load from the peak load by means of implementing awareness raising campaigns to encourage the consumers to install power system correction systems that will help them improve power factor problems and, at the same time, contribute to improve Tanesco's transmission and distribution losses. [4]

On the formulation of policies, strategies and plans targeting EE, the Government of Tanzania - working with several Development Partners - has developed an Energy Efficiency Report, which will be the basis for the development and implementation of a National Energy Efficiency Programme. Through this programme, the Government of Tanzania expects to establish: an Energy Efficiency Policy with concrete goals and targets and develop a National Energy Efficiency Action Plan; develop a framework targeting energy managers and auditors; develop Energy Efficiency Standards and Labelling; develop standards and regulations to address EE in buildings; address industrial energy management and efficient biomass utilisation. Moreover, the programme also includes several capacity building components on EE directed at the public and private sectors. [4]

Efficient cooking stoves and biogas installations

In terms of improving efficiency in cooking energy, there is the Tanzania Domestic Biogas Programme (TDBP) that started in 2009. The first phase was completed in 2013 in which 8,799 plants were installed. The second phase started in 2014 and ended in 2017. The programme is hosted in the Centre for Agricultural Mechanization and Rural Technology (CAMARTEC) and receives technical assistance from SNV. It is part of the Africa Biogas Partnership Programme (ABPP) as managed by Hivos with funding from the Netherlands Directorate for Development Cooperation (DGIS), The Government of Tanzania aims to contribute with funding to TDBP through REA from 2015 onwards. [4]

According to data from the National Bureau of Statistics, 94.4% of the population in Tanzania used biomass based fuel for cooking in 2012 – the two primary sources being firewood (68.6%) and charcoal (25.6%)⁸¹. Firewood is used mostly in rural areas while many of the urban inhabitants use charcoal. Charcoal consumption has been increasing rapidly in recent years due to greater demand, ease of transport and storage.

The Biomass Energy Strategy (BEST), recognises that the demand for firewood and charcoal for cooking, heating and commercial uses is one of the most important factors affecting Tanzania's forest sustainability. As it tries to address basic issues of biomass management, the BEST has not set quantitative targets.

The current BEST recommends the development of a major Improved Cookstove (ICS) programme, which should set quantitative targets. Reducing woodfuel consumption in households, industries, commercial establishments and institutions will help meet the BEST Tanzania goal of ensuring the sustainability of Tanzania's wood fuel supplies.

Tanzania is a partner country of the Global Alliance for Clean Cookstoves (GACC). Under the GACC umbrella, Global Village Energy Partnership (GVEP), by now named Energy4Impact, and Accenture Development Partnerships (ADP), a market assessment of the cookstoves in Tanzania has been undertaken in 2012. The market assessment estimated the penetration of ICS to be around 400,000 households in 2012, mostly charcoal burning stoves. Improved stoves are more available around the urban centres of Dar-es-Salaam, Arusha, Morogoro, Dodoma and Mwanza. Complementary market intelligence studies on clean cookstoves have been done in 2013 by the ICS Taskforce as chaired by MEM, with TAREA holding the secretariat. [.]

5. Governmental framework

Relevant governmental stakeholders are:

Ministry of Energy and Minerals (MEM)

The Ministry of Energy and Minerals is responsible for the national energy policy and coordination of the activities in the sector. Its task is to create an attractive framework so that all stakeholders can operate successfully. MEM has responsibility for creating and reviewing policies and strategies as set out in the National Energy Policy and the National Energy Strategy through issuances and guidelines.

<https://mem.go.tz> [1]

The Ministry of Energy and Minerals frames its strategy and priorities for renewable energy development as part of the overall efforts to achieve economic growth and poverty reduction. It foresees a need for substantial improvements within the energy sector as a whole, both on the demand and supply sides. [2]

Division of Environment within the Vice President's Office (VPO-DoE)

The Division of Environment within the Vice President's Office (VPO-DoE) is mandated to oversee and regulate environmental management across government departments and agencies. It prepares and issues environmental regulations and guidelines, in conformity with the National Environment Act (2004). This includes guidelines for undertaking Environmental Impact Assessments (EIAs) as well as broader environmental guidelines and safeguards. In addition, VPO is the Designated National Authority for the Clean Development Mechanism (CDM), the carbon emissions reduction tool for countries without emission reduction targets such as Tanzania. [2]

Rural Energy Agency (REA)

REA (Rural Energy Agency) is an autonomous body under the Ministry of Energy and Minerals and was established in 2008 to oversee the implementation of electrification projects in rural areas of Mainland Tanzania, using the Rural Energy Fund as provided in the Rural Energy Act, Cap 131. Both REA and the Rural Energy Fund (REF) are governed by the Rural Energy Board (REB), which is made up of 8 delegates from different government agencies and sectors of civil society. [2]

Its main role is to promote and facilitate improved access to modern energy services in rural areas. [1]

Most of the projects implemented with cooperation from MEM are renewable in nature such as the solar PV projects and projects planned on Pico and mini hydro and energy efficiency technologies.[2] The agency actively works with the private sector, non-governmental organizations, community-based organizations and government agencies.

<http://www.rea.go.tz/> [1]

Energy and Water Utilities Regulatory Authority (Energy regulator)

The Energy and Water Utilities Regulatory Authority (EWURA) is an autonomous multi-sectoral regulatory authority established by the Energy and Water Utilities Regulatory Authority Act, Cap 414 of Tanzania regulations (2001). It is responsible for technical and economic regulation of the electricity, petroleum, natural gas and water sectors in Tanzania. EWURA regulates tariffs for all electricity trade in the country.[2]

The functions of EWURA include licensing, tariff review, monitoring performance and standard-setting with regards to quality, safety, health and environment. EWURA is also responsible for promoting effective competition and economic efficiency, protecting the interests of consumers and

promoting the availability of regulated services to all consumers including low income, rural and disadvantaged consumers in the regulated sectors.

<http://www.ewura.go.tz/> [1]

Tanzania Electricity Supply Company Limited (TANESCO)

Tanzania National Electric Supply Company (Tanesco) has the role of generating, transmitting, and distributing electricity to all parts of the country. Tanesco operates the grid system and isolated supply systems in Kagera, Kigoma, Rukwa, Ruvuma, Mtwara and Lindi.

Tanesco started to outsource some of its functions to private companies engaged in power trading in 1992. There was an increase in private power generating companies after the government allowed them to produce electricity from different sources, mainly petroleum and natural gas, and sell to Tanesco and other consumers. The private companies that generate electricity are Independent Power Tanzania Limited (IPTL), Symbion Company, and Agrreko Company. Some of these companies are owned by religious institutions, local industries, and Community Based Organizations (CBO's). [2]

Tanzania's second Five-Year Development Plan (FYDP II), unveiled in June 2016, foresees a six-fold expansion of the power grid over the next decade. The plan sets a top-line installed base target of 10GW by 2025/26 – up from only 1.5GW in 2015. Hydro and fossil fuels will account for a sizeable chunk of the grid's growth, while the role of wind and solar is much less clear. The government's reform of the power sector, in the 2014 Electricity Supply Industry Reform Strategy and Roadmap, would see Tanesco unbundled by 2025. Full liberalization, however, will be hard to achieve within the prescribed timelines. [3]

<http://www.tanesco.co.tz>

Independent Power Producers

The Tanzanian government differentiates between Independent Power Producers, Small Power Producers and Emergency Power Producers. They currently contribute 40% to the installed capacity. Nine large power plants using gas, heavy fuel oil and diesel are run by private companies (IPPs). Two Emergency Power Producers, Aggreko and Symbion LLC, were hired by Tanesco to temporarily produce power in order to decrease the need for load shedding. Independent Power Producers are all private companies running power plants larger than 10 MW under a Purchase Power Agreement. A number of Small Power Producers (SPPs) develop smaller projects (< 10 MW) under a specific SPP framework and sell their produced electricity to Tanesco or to consumers such as agricultural businesses that produce sugar, tea, sisal or tannin. Their supply is usually based on renewable energy technologies – particularly biogas and solar PV. [1]

Tanzania Investment Center (TIC)

The Tanzania Investment Centre (TIC) was established in 1997 by the Tanzania Investment Act to be the Primary Agency of the Government to coordinate, encourage, promote and facilitate investment in Tanzania and to advise the Government on investment policy and related matters. The agency deals with all enterprises whose minimum capital investment is not less than US \$ 500,000 if foreign owned or US \$ 100,000 if locally owned. The agency assists all investors to obtain permits, authorization etc. required by other laws to set up and operate investments in Tanzania.

<http://www.tic.co.tz/> [1]

Tanzania Revenue Authority

The Tanzania Revenue Authority (TRA) was established by Act of Parliament No. 11 of 1995, and started its operations on 1st July 1996. In carrying out its statutory functions, TRA is regulated by law, and is responsible for administering impartially various taxes of the Central Government.

<http://www.tra.go.tz/index.php/corporation-tax> [1]

TIB Development Bank

TIB Development Bank Limited was established in November 1970 under a Parliamentary Act. The Government re-designated TIB as a Development Finance Institution (DFI) in 2005 with engagement now focused primarily on infrastructure, industrialization (agro-processing, mining, and general manufacturing) oil and gas and services sector.

<http://www.tib.co.tz/tibdfi/> [1]

6. Regulatory framework

Tanzania has one of the most robust regulatory and legal frameworks in the region that encourages the construction of small power projects. At end-2015, the regulator approved the so-called second-generation framework, which improves on its predecessor in several ways: projects will earn a fixed tariff for the lifetime of the PPA. Previously the rates fluctuated annually based on the distribution network operator's avoided costs. The selection method will vary by technology, so there will be an administrative process for small hydro and biomass projects, and competitive bidding for solar and wind. Indeed, competitive bidding is now the catchphrase of Tanzania's approach to energy policy and will form part of the regulatory framework for utility-scale renewable power producers. However, it is still unclear when the plan will be implemented.[3]

The Ministry of Energy and Minerals has updated the Power System Master Plan (PSMP), which lays out several scenarios for the development of Tanzania's electricity industry in December 2016. Under the 'optimal expansion plan', the country would add ten times more fossil fuel capacity than renewables by 2030. Emphasis on adding 'firm' capacity outstrips ambitions to be 'clean'. For example, by 2030, under the PSMP's 'optimal' mix, Tanzania aims to build 3.4GW of new coal capacity, tapping into domestic coal reserves. It will also add more than 3.3GW of natural gas-fired generation, bolster its existing hydroelectric fleet by 1GW, and install 650MW of wind and solar (combined). [3]

An ecosystem of off-grid energy providers has emerged in rural Tanzania, set apart from the bureaucratic quagmire that stifles prospects for a centralized grid. Tanzania is a hotspot for the distribution of pico-solar lighting products and the development of mobile-based, pay-as-you-go business models for access to off-grid solar arrays. [3]

Tanzania has a series of development and sector policies and strategies, which support the country's progress towards the three sustainable energy for all (SE4ALL) goals: universal access, increasing the share of RE and enhancing EE. These strategic documents and activities include the following:

- Policy Framework:
 - o Energy and Water Utilities Authority Act 2001 and 2006
 - o National Energy Policy of 2003
 - o Rural Energy Act 2005
 - o Electricity Act 2008
 - o The Petroleum Act 2008
 - o Public Private Partnership Act No. 18 of 2010 and its Policy of 2009
 - o Standardized Power Purchase Agreement & Tariffs (2008) (<10 MW)
- Government driven strategies and plans:
 - o Tanzania's Development Vision (TDV) 2025 (1999)
 - o The Tanzania's Long-term Perspective Plan (LTPP) 2011/12 – 2025/26
 - o Joint Energy Sector Review (JESR) 2012/2013
 - o National Strategy for Growth and the Reduction of Poverty II - MKUKUTA II (July 2010)
 - o Power Systems Master Plan (PSMP) 2012 (May 2013)
 - o MEM Strategic Plan from 2011/12-2015/16 (November 2012)
 - o Big Results Now Phase I (BRN) Initiative 2013-2016 (April 2013)
 - o Scaling-up Renewable Energy Programme (SREP) – Investment Plan for Tanzania (May 2013)
 - o Biomass Energy Strategy (BEST) for Tanzania (April 2014)
 - o Electricity Supply Industry (ESI) Reform Strategy and Roadmap 2014-2025 (June 2014)

- o National Electrification Program Prospectus (herein referred to as REA Prospectus) developed by REA (July 2014)
- o Guidelines for Sustainable Liquid Biofuels in Tanzania (Nov 2010)
- o The National Natural Gas Policy of Tanzania (Oct 2013)
- o Preparation of National Energy Efficiency Program for Tanzania (July 2014)
- o Energy Subsidy Policy (September 2013)
- o The Draft National Energy Policy (January 2015)
- Private Sector Strategies:
 - o Tanzania Domestic Biogas Programme (TDBP)
 - o Country Action Plan for Clean Cookstoves and Fuels, as promoted by the Tanzania Renewable Energy Association (TAREA)
 - o Results-Based Financing for Pico-Solar Market Development, as part of the Energising Development (EnDev) programme implemented by SNV.

[4] Source Tanzania's SE4ALL Action Agenda December 2015

7. Access to finance

Laws and Regulations Governing Foreign Direct Investment

The Government of Tanzania (GOT) has historically been successful in attracting FDI, with recent years being focused on the productive and extractive sectors. The aforementioned Tanzania Investment Center (TIC), sits at the heart of the efforts to attract FDI through promoting and facilitating investments in the country. TIC approved projects along with those in Zanzibar through the Zanzibar Investment Promotion Authority (ZIPA) receive certificates of incentives which include VAT and import duty exemptions and 100% repatriation of profits, dividends, and capital after tax. Sectors of focus under the investment institutions include energy in addition to amongst others agriculture, tourism and transportation. Registering with the TIC offers incentives for joint ventures with Tanzanian and wholly owned foreign projects investing a minimum of \$500,000.

In 2014 the amended version of the Public-Private Partnership (PPP) Policy with the PPP Act and PPP Regulations came into law, covering many areas of foreign investment including power generation and transmission.

The Tanzanian government established a Local Content Policy (LCP), originally for the oil and gas industry, in May 2015. This was then expanded to cover all economic sectors including in energy with an objective of placing local products, produced by local industries/organization and businesses in an enhanced position for accessing opportunities from foreign direct investments. [1]

Renewable Energy Investment Incentives

Rural Energy Fund (REF)

The Rural Energy Fund (REF) is an instrument administered by the Rural Energy Agency (REA) to promote programmes designed to increase energy access in rural Tanzania by subsidizing rural energy projects via grants towards capital costs of project implemented by public and private organisation as well as cooperatives and community groups. The fund is capitalised through government budget allocations, interests or return on investment, specific taxes on petroleum products and electricity, and development agencies. One specific example under this framework is the Result Based Finance (RBF) grants programme for mini and micro-grids as supported by SIDA and DFID that had its first call for proposals at the end of 2016. [1]

Development Agency Engagement

Numerous development agencies and partners active in Tanzania cover energy within their areas of focus. These include but are not limited to the EU, UK Department for International Development (DFID), Swedish International Development Cooperation Agency (SIDA), International Development Association (IDA) and Norwegian Agency for Development Cooperation (NORAD). IDA amongst other initiatives has supported developments through the Rural Energy Agency and the Ministry of Water on using Solar Energy to power water supply in the country. Current plans aspire for all new rural water projects in Tanzania to utilise solar power. SIDA aims to directly support access to electricity for 300,000 Tanzanians with sustainable energy promotion through an improved regulatory framework and private sector engagement being the focus. One such example, as highlighted above, being the green mini-grid RBF programme jointly developed with DFID. NORAD reports investing over EUR 9.5million in Tanzania in 2015 in the environment and energy sectors. Over the years this work has included supporting the supply of power to Zanzibar through an undersea cable and additional follow up support to the Zanzibar Electricity Company (ZECO). Further support has included funding pilot studies for a regional power line between Tanzania and neighbouring Kenya and on grid development plans with TANESCO. More recently Norway has funded the drawing up of a now adopted 10-year investment plan for village electrification that could

see the country further fund grid expansion and private investment in isolated networks, as well as to distributed systems in partnership with Lighting Africa Tanzania. [1]

8. Opportunities and barriers for Dutch renewable energy companies in Tanzania

Opportunities

With over 55 million people, and an electrification rate of only 33%, the total market for electricity products and services is still extremely large with around 37 million people that remain unserved. Especially in rural areas the electrification rate is low at only around 17%¹. Despite the ambition of the government to increase this percentage it is expected that the market for off grid electricity services, for example via solar home systems, will be around for the foreseeable future.

With an electricity retail price of 13.3 dollar cent at first glance it may seem difficult to compete with the electricity grid. The reliability of the energy supply however is very low, therefore it may even be interesting for households that are already grid connected to invest in a solar home system to invest in renewable energy technology in order to create a more reliable power supply.

The total power generation capacity in Tanzania is still less than 1.3 GW¹, with a total population of 55 million people this is still very limited. This also presents interesting opportunities for large scale centralized renewable energy generation projects in case good, and enforceable, agreements can be made with the government regarding the feed in tariff.

As previously described it is likely that there are vast untapped opportunities related to geothermal generation in Tanzania. The great rift valley has already proven to be a valuable geothermal resource in Kenya. In Tanzania this promising resource is still undeveloped which could offer interesting opportunities for Dutch developers.

SNV has developed a domestic biogas programme in Tanzania which is aimed at households. The market for larger scale biogas for productive use still seems underdeveloped while there are many biological waste streams, such as pineapple waste, available that could be used to feed larger scale biogas digesters. Biogas could offer an interesting opportunity for companies with significant organic waste streams to make their operation self-sufficient regarding energy or even sell excess power to third parties.

There are also very interesting opportunities for companies that are active in clean cooking, either through the provision of safe, clean and efficient cookstoves or via the production of fuels such as briquettes or pellets from bio-waste. As deforestation is a very serious issue in Tanzania the government has become much stricter on the use of solid biomass for cooking and the production and trade of charcoal, thereby creating demand for efficient cooking and alternative fuels.

The energy sector management assistant programme (ESMAP), has identified renewable energy resources in Tanzania, as can be seen there is a lot of potential in Tanzania. The detailed reports can be found here: <https://www.esmap.org/node/57050>.

Besides the large potential for generation of renewable energy in Tanzania and the large potential and underdeveloped market, the regulatory framework in Tanzania has been very clear, reliable and favourable for investments in renewable energy. The regulations regarding renewable energy are developed and implemented by the Energy and Water Regulatory Authority (EWURA). It's main contents were already described in chapter 5. Especially the tax exemptions for renewable energy

¹ <https://www.usaid.gov/sites/default/files/documents/1860/TanzaniaPACFSDEC2017.pdf>

have had a stimulating effect on attracting renewable energy enterprises. The regulatory framework has been instrumental in creating a positive investment climate for renewable energy.

Another facilitating factor in Tanzania has been the penetration of mobile phone based money transfers in Tanzania. A total of 16 million people, or 44% of the adult population² has access to 'mobile money'. Mobile money enables people to transfer money and make payments without using a formal bank account. The high penetration rate of mobile money enables companies providing renewable energy products and services to apply the pay as you go model. In this model households pay a monthly fee instead of the full investment up front. This enables companies to serve far more people as most rural households would not be able to make the total investment that is required up front, while many are able and willing to pay such a monthly fee for access to electricity.

Finally there are many donors such as DFID, Sweden and World Bank that have set up large energy access projects for Tanzania. This means that a lot of money is available for renewable energy activities. Most of the funds are invested through REA.

These factors combined until about two years ago made Tanzania one of the most attractive African countries to start and operate a business offering renewable energy products and services. This is exemplified by the fact that some of the largest companies worldwide that offer energy access products and services have started operations in Tanzania. Some examples are Mobisol and Off-grid Electric. Besides them, some of the largest mini-grid players, such as Rafiki Power and Husk are also present in Tanzania.

Challenges

The past two years unfortunately the positive outlook for setting up a business in the renewable energy sector has significantly changed.

In 2014 a large corruption case was discovered in the energy sector, which showed that around 180 million US dollar was siphoned off into offshore bank accounts³. Besides that a mayor corruption case regarding tax evasion took place in the mining sector.

Understandably these events have harmed the trust in the private sector regarding the development of energy projects. This is currently also clearly reflected in the business climate for (renewable) energy projects.

The new president, John Magufuli, who took office in November 2015 has made eradication of corruption one of its key priorities. While in itself of course this is a commendable course of action it also had a number of negative consequences for the general business environment in Tanzania. Despite these developments Tanzania is still ranked as the 137th country in World Banks' ease of doing business index.

According to one of the interviewed experts this impact is exemplified by civil servants being extra careful as they that fear minor mistakes, not necessarily related to corruption, may result in termination of their employment. This in turn results in very long lead times for importing products via the harbour in Dar Es Salaam. Entrepreneurs currently get around this by importing from different harbours in the region such as Mombassa and then crossing one of the border via land.

² <https://www.tanzaniainvest.com/mobile-money>

³ <https://www.occrp.org/en/daily/6609-two-tanzanian-energy-tycoons-charged-in-2014-corruption-scandal>

Additionally civil servants responsible for taxation are afraid that they are not applying all taxes that may be due. Despite the clear tax exemption for renewable energy products there are instances where customs officials do charge import duties on products that thus far were always exempted, or applying taxes on products that would previously fall under the tax exemption.

Another striking example is for solar lanterns that have a connection that makes it possible to connect it to grid based electricity. Clearly this cable wouldn't be used in off grid areas but the sudden taxation causes real problems to companies providing these products. Their customers were already used to the product price without additional tax, now companies would need to increase the retail price to make up for this new taxation. In some cases taxes are also implemented retroactively which clearly causes a very high financial burden which was not previously taken into account, thereby actually forcing otherwise successful enterprises to cease operations. Other companies deal with this by instructing the producers of solar lanterns to leave out the cable connection. These custom requirements related to taxation do increase the costs of the product but do not increase the functionality.

Worse than the increased taxation itself is the uncertainty of how existing policies are applied and the resulting business climate.

Another example of the uncertainty in the business environment is the natural resource law that was enacted in July 2017. This law includes a section that states that the government can renegotiate existing contracts at any time. In case negotiations are unsuccessful, the rights to mine these resources can be withdrawn. Even though this is understandable considering the previous issues in the mining sector, it is a big deterrent for foreign direct investment in sectors that are under this law.

Another requirement is to recruit Tanzanian staff members. Even though in principle understandable, at this stage the skills required for certain technical issues are not necessarily available in the Tanzanian market. Previously companies would hire Kenyan experts to address this issue. This is no longer allowed, which may cause operational issues for some companies. Other challenges relate to logistics. Tanzania is a large country and transport can take a long time. As there is only a limited number of companies active in transportation the costs of this service in Tanzania are also relatively high.

In the past Tanzania received a lot of foreign funding for developing renewable energy projects. This has created a certain mind set in which expectations are raised that money should be provided on a non-commercial basis. This makes it very difficult to operate on a market based basis.

In the recent past, immigration rules are also more thoroughly enforced. There are examples of CEO's of renewable energy companies that did not receive new work permits. Not getting access to the country clearly makes it very difficult to manage operations.

Another development is the fact that large natural gas deposits were discovered in Tanzania. The current interest of the Tanzanian government is therefore mainly on developing this resource as this could significantly help to boost the public budget. Besides natural gas developments there seems to be more interest in the development of large scale energy infrastructure than decentral renewable energy.

Not many utility scale projects were actually developed in Tanzania. There have been some developments by American companies but according to one of the interviewed experts the government would like to renegotiate the previously agreed upon electricity rates. These kind of examples are not helpful in attracting new renewable energy investors to Kenya.

According to one expert, the current business model of Tanesco, the national electricity utility is also worrisome. They recently proposed to increase the price of electricity with 18% to make sure the rate would become cost reflective. The regulator then reduced this percentage to 8%. In the end the prime minister actually sacked the CEO of Tanesco and the rate increase was cancelled altogether. One of the consequences is that generation capacity cannot keep up with the demand for electricity.

Due to the issue with the business model of Tanesco as described above, donors are shying away of supporting Tanesco with the development of generation capacity. Instead they turn to the Rural Energy Agency, which is tasked to ensure that electricity is made available in rural areas. In the past years REA mainly focussed on grid extension, in part because they don't want to get in the way of Tanesco who is mandated to develop generation capacity. Naturally grid extension only has limited use if generation capacity cannot keep up with increased demand for electricity. Currently Tanzania is seriously considering to expand coal fired generation capacity. Tanzania does have large coal reserves that could be used to feed these power plants. Considering the large and cost effective renewable energy potential this would be a missed opportunity with a serious negative climate impact.

There are various projects for renewable energy investments in the pipeline regarding wind power in Tanzania, the first one in Dodoma but also in Singida there are 4 proposals in preparation, all in varying stages. At this moment however very few actual contracts are signed between the government and private developers.

Another issue currently limiting investment is the fact that Tanzania is planning to invest in a large scale hydro project called 'the Stieglers gorge'. This is planned in the Selous game reserve, one of the largest faunal reserves in the world. Internationally there is a lot of criticism due to the expected social and environmental impact.

This would be a 2.1 GW in a country with an installed capacity of only 1.3 GW. If Stieglers Gorge would come online there would be significantly more production than demand. This also means that entering into power purchasing agreements with fixed future tariffs is risky for the Tanzanian government as they would be locking in future losses, assuming Stieglers Gorge will be built. Additionally it strongly restricts the opportunity to invest in other projects.

The combination of distrust in the private sector, combined with very limited investment space within the government makes it very challenging to develop new renewable energy projects. Due to these issues it may be more interesting to look into business to business opportunities instead.

9. Dutch companies active in Tanzania

Advance Consulting*

Ecozoom*

Greenlink

Interdependent Power*

Mimi Moto*

Pangea Investment

Simgas

Solinc

TNO

Waka Waka

Zwart Techniek*

Companies marked with * took part in an interview related to taking part in a green trade mission

10. Relevant Dutch support schemes

Subsidies & Programmes run by the Netherlands Enterprise Agency (RVO)

This chapter provides a selection of the programmes run by the Netherlands Enterprise Agency (RVO). For a full overview: <http://www.rvo.nl/subsidies-regelingen> (in Dutch)

For country specific information see:

<https://www.rvo.nl/onderwerpen/internationaal-ondernemen/landenoverzicht/tanzania>

Dutch international governmental network

The Dutch government has an extensive network of international offices. This network helps companies by advising them, making contacts for and opening doors. They are present on site, know local players, networks and the market, and know how to deal with language and culture barriers.

They can help Dutch entrepreneurs finding their way abroad when doing business internationally. They can help to find reliable, foreign business partners. They also can make a business partner scan. <https://www.rvo.nl/onderwerpen/internationaal-ondernemen/netwerken-en-contacten/buitenlandnetwerk>

Dutch Good Growth Fund (DGGF)

The Dutch Ministry of Foreign Affairs provides finance and insurance through the Dutch Good Growth Fund (DGGF) programme, facilitating development related trade and investment in over 60 countries. The fund consists of 3 parts:

Investing

The DGGF provides Dutch SMEs doing business in developing countries and emerging markets with customised financing. Do you want to invest in a DGGF countries, but have trouble getting the necessary financing? The DGGF facility Investing Dutch SMEs offers guarantees and direct financing with a repayment obligation, such as loans and equity investments in projects.

Local SMEs

Do you manage an investment fund that aims to improve the access of local SMEs to finance? Read more about the DGGF facility Investment funds local SMEs.

Exporting

If you need help exporting capital goods to one or more of the DGGF countries, the DGGF facility Exporting Dutch SMEs provides export credit insurance and export financing.

More information: Find information about the qualifications, procedures and transactions on english.dggf.nl.

The Dutch Good Growth Fund is a programme of the Dutch Ministry of Foreign Affairs. It is administered by the Netherlands Enterprise Agency (RVO.nl), Atradius Dutch State Business (for Dutch SMEs) and a consortium of PwC and Triple Jump (for local SMEs).

Dutch Trade and Investment Fund (DTIF)

The Dutch Trade and Investment Fund (DTIF) consists of two components: Investment and Exports. The fund was established in 2016 and replaces the Facility Emerging Markets (FOM) and Finance for International Business (FIB) financing instruments.

For whom?

Dutch companies wanting to invest in or export to foreign markets can apply for DTIF. The fund was established to stimulate the globalisation of Dutch companies.

Budget

DTIF can offer up to € 15 million in financial support for each project. The total budget is € 102 million.

For which countries?

DTIF is available to all countries, with the exception of those which are eligible for DGGF finance and countries under sanction by the United Nations Security Council or the European Union. These applications will be assessed with extra scrutiny. The sanctions policy of the Security Council and/or European Union will be maintained in all cases.

DTIF Investment

DTIF Investment offers support through loans, guarantees and direct or indirect shares with a repayment obligation. The Netherlands Enterprise Agency (RVO.nl) serves as the fund manager for this facility.

DTIF Exports

Interested in exporting capital goods to one or more DTIF countries? The DTIF Exports facility can help by offering export credit insurance and funding. Atradius Dutch State Business serves as fund manager for this resource.

Differences between DTIF and DGGF

DTIF is closely linked to the Dutch Good Growth Fund (DGGF). However, the two funds differ in terms of their target countries. DGGF is mainly focused on developing countries, whereas DTIF targets other foreign markets.

DTIF is open to all Dutch companies, whereas DGGF exclusively services businesses in the SME sector. DTIF does not offer funding for local SMEs, while DGGF does.

Energising Development Partnership Programme (EnDev)

The Energizing Development Partnership Programme (EnDev) gives households, social institutions and SMEs in developing countries permanent access to modern energy technologies and energy services. The projects take place in 24 countries in Africa, Latin America and Asia.

What does EnDev do?

EnDev supports the development of markets for modern energy facilities, especially in rural areas. For example, the development of renewable energy to cook, for lighting and for mobile phones. Part of the EnDev programme is the training and coaching of manufacturers and retailers of for example energy-efficient cookstoves and small solar energy systems. The programme also supports the construction of electricity connections via mini-grids and better network coverage. And EnDev stimulates the production of biogas digesters for household purposes.

Outcome-oriented

The EnDev program focuses on supply and demand. On the demand side, financial products can be developed that allow poor households to buy energy products. On the supply side, projects concern the quality and availability of these energy products.

The programme EnDev has no subsidy component. It publishes Specific Calls for Proposals in the form of Result Based Financing (RBF). The calls can be found on the website www.endev.info.

Background

EnDev is a partnership between the Netherlands, Germany, Norway, Australia, the United Kingdom and Switzerland. The programme is coordinated by the German Gesellschaft für Internationale Zusammenarbeit (GIZ) and the Netherlands Enterprise Agency (RVO.nl). RVO.nl does this on behalf of the Dutch Ministry of Foreign Affairs.

More information can be found at www.endev.info.

Starters International Business (SIB)

Exporting goods and services abroad offers your business more opportunities. It can lead to greater sales and serve as a solution to the challenge of increased competition in the domestic market. With its Starters International Business (SIB) programme, the Ministry of Foreign Affairs can help you move into foreign markets.

Vouchers

Export allows you to effectively spread your risks. Buy how do you start? What are your company's strengths? Which markets can offer opportunities and how can you successfully seize them?

Three different SIB vouchers can help you with your plans to take your business abroad:

- Individual coaching voucher (in Dutch) to hire a consultant / coach to look at your opportunities abroad and to work towards a concrete plan of action.
- Collective activity voucher (in Dutch) to participate in an outbound trade delegation or a joint trade fair presentation.
- Knowledge acquisition voucher to hire an international lawyer or tax consultant.

DHI

Subsidy scheme for demonstration projects, feasibility studies and investment preparation studies (DHI)

The DHI scheme supports Dutch enterprises that want to invest in or execute a project in emerging markets and in developing countries.

The DHI scheme is a tender programme. Enterprises can submit a tender during the tender periods. The 1st tender for 2018 closed on 29 March at 3 p.m. The 2nd tender in 2018 opens on 9 August and closes on 21 September, 3 p.m. (Dutch time).

3 modules

The DHI scheme consists of 3 modules:

- Demonstration projects: presentation of a technology, capital goods or service in one of the DHI countries.
- Feasibility studies: assessment of the profitability of a foreign investment in a product or service.
- Investment preparation studies: assessment of the technical and commercial profitability of an investment in a company in one of the DHI countries.

For whom?

DHI focuses on SMEs in the Kingdom of the Netherlands with international ambitions and an interest in emerging markets and developing countries. The SME test tells you whether you are an SME entrepreneur.

Countries

The DHI scheme is open to projects in all countries, with the exception of the European part of the Kingdom of the Netherlands and possibly countries that are subject to international sanctions.

More information (in Dutch) can be found on the Dutch RVO website.

Clean Cooking Programme

The Netherlands Enterprise Agency participates in the Clean Cooking Programme, which supports key stakeholder organisations in the cooking energy sector in Kenya, Ghana, Uganda, Ethiopia and Bangladesh. This programme is not a subsidy programme.

Developing markets for clean cooking

Every year there are more than 4 million deadly accidents in developing countries because of cooking in traditional ovens or on open fires. The commitment of international organisations and local governments, companies and NGOs can help the development of commercial markets for energy-efficient cookstoves with lower emissions or for smoke-free ovens. In this way, these ovens will become widely available to people in developing countries.

Connecting people and networks

The Global Alliance for Clean Cookstoves plays an important role in building international networks. Nationally, this work is done by National Alliances for Clean Cookstoves. The Netherlands Enterprise Agency supports the growth of these key stakeholder organisations.

11. Relevant international donors

The following international donors are active in Africa and are relevant for energy related projects in African countries. The overview below is a shortlist for more details we refer to the websites mentioned in the text.

The World Bank

The World Bank is a vital source of financial and technical assistance to developing countries around the world.

The Bank is made up of two unique development institutions owned by 184 member countries:

- the International Bank for Reconstruction and Development (IBRD)
- the International Development Association (IDA)

Each institution plays a different but supportive role in the Bank's mission of global poverty reduction and the improvement of living standards. The IBRD focuses on middle income and creditworthy poor countries, while IDA focuses on the poorest countries in the world.

Together they provide low-interest loans, interest-free credit and grants to developing countries for education, health, infrastructure, communications and many other purposes.

Target group: consultants, businesses, government, industries.

More information: <http://www.worldbank.org/>

International Finance Corporation (IFC)

IFC is a sister organization of the World Bank and member of the World Bank Group. IFC is the largest global development institution focused exclusively on the private sector in developing countries. The Bank Group has set two goals for the world to achieve by 2030: end extreme poverty and promote shared prosperity in every country.

The IFC applies their financial resources, technical expertise and global experience to help their clients and partners to overcome financial, operational, and other challenges.

IFC is also a leading mobilizer of third-party resources for projects.

More information:

https://www.ifc.org/wps/wcm/connect/corp_ext_content/ifc_external_corporate_site/home

Energy Sector Management Assistance Program(ESMAP)

ESMAP is a partnership between the World Bank Group (WBG) and 18 partners to help low and middle-income countries reduce poverty and boost growth, through environmentally sustainable energy solutions. ESMAP's analytical and advisory services are fully integrated within the WBG's country financing and policy dialogue in the energy sector. Through the WBG, ESMAP works to accelerate the energy transition required to achieve Sustainable Development Goal 7 (SDG7) to ensure access to affordable, reliable, sustainable and modern energy for all. It helps to shape WBG strategies and programs to achieve WBG Climate Change Action Plan targets: 28% of WBG financing with climate co-benefits; scale up 20 GW in renewable energy generation and integrate an additional 10 GW of variable renewable energy sources into grids over 5 years; mobilize \$25 billion in commercial funds for clean energy; invest at least \$1 billion to promote energy efficiency and resilient buildings by 2020; and, increase support to policy actions for sector reform, including for fossil fuel subsidies.

More information: <https://www.esmap.org/>

African Development Bank (AfDB)

The African Development Bank group (ADB) is a multilateral development bank. The Bank group's primary objective is to promote sustainable economic growth in order to reduce poverty in Africa. It achieves this objective by financing a broad range of development projects and programs through:

- loans;
- equity investments;
- technical assistance.

The Bank prioritizes national and multinational projects and programs that promote regional economic cooperation and integration. The Bank group consist of:

- African Development Bank (ADB);
- African Development Fund (ADF);
- Nigerian Trustfund (NTF).

Target group: Small and medium-sized enterprises (SMEs).

More information: <https://www.afdb.org/en/>

Sustainable Energy Fund for Africa: Project Preparation Grants and Seed/Growth Capital. It is an equity/grant. See also: <https://goo.gl/D71MEh>

The European Union (EU)

The EU invests in countries and regions within Europe (internal programs), but also in countries outside Europe (external programs). In addition, the EU also spends orders and services for its own use.

External programs

The European Commission spends part of the EU budget on aid programs in countries outside the EU. https://ec.europa.eu/europeaid/home_en

The responsibility for the implementation of external aid programs and the procurement of contracts lies with the Directorate-General (DG) for International Cooperation and Development (DG DEVCO) . https://ec.europa.eu/europeaid/general_en

DG DEVCO also does this for programs from, among others, the Directorate-General for Neighbourhood and Accession Negotiations (DG NEAR).

On the website of DG DEVCO you will find information on how you can qualify for:

- Financial support from the EU budget for relief activities.
- Assignments in the framework of the European aid programs.

You will also find practical information about procedures, conditions, contracts and more.

European Investment Fund (EIF)

The EIF's activity is centred upon two areas, venture capital and guarantees:

- EIF's venture capital instruments consist of equity investments in venture capital funds and business incubators that support SMEs, particularly those that are early stage and technology-oriented;
- EIF's guarantee instruments consist of providing guarantees to financial institutions that cover credits to SMEs.

Through the leverage effect of its venture capital and guarantee instruments, the EIF is able to contribute to the development of SMEs in the EU Member States and the candidate countries. Both instruments implemented by the EIF for SMEs are complementary to the Global Loans provided by the European Investment Bank to financial intermediaries in support of SME financing. EIF's instruments are implemented on commercial terms.

SMEs in search of finance are requested to contact an EIF intermediary in their country or region for information on eligibility criteria and application procedures.

Target group: Small and medium-sized enterprises (SMEs) in the European Union and the candidate countries

More information: www.eif.org

Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH(GIZ)

GIZ is a provider of international cooperation services for sustainable development and international education work. GIZ has over 50 years of experience in a wide variety of areas, including economic development and employment, energy and the environment, and peace and security.

GIZ works for the German Government, European Union institutions, the United Nations, the private sector and governments of other countries. The German Federal Ministry for Economic Cooperation and Development (BMZ) is the main commissioning party.

The registered offices of GIZ are in Bonn and Eschborn. In 2016 GIZ had a business volume of around EUR 2.4 billion and 19,506 employees in 120 countries. Almost 70 percent of them is national personnel working in the field.

More information: <https://www.giz.de/en/html/index.html>

Annex 1 References

- [1] <https://www.africa-eu-renewables.org/market-information/tanzania/>
- [2] <http://www.reegle.info/countries/tanzania-energy-profile/TZ> (This policy & regulatory overview is not updated anymore since 2015. We decided to keep it online due to high demand but would like to make you aware of the fact that it might be outdated).
- [3] <http://global-climatescope.org/en/country/tanzania/#/enabling-framework>
- [4] Tanzania's SE4ALL Action Agenda December 2015
- [5] <https://www.cia.gov/library/publications/resources/the-world-factbook/>
- [6] <http://www.doingbusiness.org/data/exploreeconomies/tanzania/#getting-electricity>
- [7] <https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=TZ-KE-MZ-ZA-UG>
- [8] <http://www.irena.org/publications/2018/May/Tracking-SDG7-The-Energy-Progress-Report>

Annex 2 Legislation

Source [3]

Tanzania Sustainable Energy Action Agenda

Tanzania has developed and adopted an 'Action Agenda' and investment prospectus, as part of the Sustainable Energy for All (SE4ALL) initiative. The Agenda set targets for 2030 of achieving more than 75% access to both clean cooking and electricity, as well as at least 50% of renewable power. Energy efficiency is also set to improve at a 2.6% a year.

With these in mind, the Action Agenda outlines a range of initiatives, including:

- A strategy to bring energy to areas that may not be reached by grid expansion for the next decade.
- Power market reform.
- Review of existing rural electrification policy and regulation.
- A comprehensive renewable energy strategy.
- Clean energy mini-grid programme.
- Adoption of a biomass energy strategy (BEST).
- Renewable energy technology database and technology vendors, biomass information system, and renewable energy resource system.
- A regulatory framework to address energy efficiency in the electricity, petroleum and biomass sectors.
- Human and institutional capacity development.

Tanzania 2030 Emissions Reduction Target

On 29 September 2015, Tanzania submitted its Intended Nationally Determined Contribution to the UNFCCC. At the centre is an economy-wide target to reduce its greenhouse-gas emissions by 10-20% relative to a business-as-usual (BAU) scenario by 2030.

Its BAU scenario forecasts greenhouse-gas emissions of 138-153MtCO₂e by 2030.

The country intends to achieve its 2030 target by:

- Boosting the use of natural gas and renewables in the power generation mix.
- Promoting mass transport systems.
- Enhancing waste-management approaches.
- Improving carbon sinks through forest conservation, afforestation and reforestation.

It estimates that it will need \$0.5-1bn a year to implement its adaptation activities and another \$60bn to achieve its mitigation efforts.

Tanzania VAT Exemption

Under the Value Added Tax Act 2014, the following products are exempt from VAT: supply of solar panels, modules, solar charger controllers, solar inverter, solar lights, vacuum tube solar collectors and solar battery.

Effective start date 2015-07-01

Tanzania Renewable Energy Target

Tanzania's National Five Year Development Plan 2016/17 – 2020/21 (FYDP II) seeks to boost renewables' Tanzania's share electricity generation from 36% in 2014/15 to 50% by 2020/21 and 70% by 2025/26. Hydro is (and will remain) Tanzania's largest source of renewable electricity. Tanzania's National Five Year Development Plan (2016/17 – 2020/21) sets out to 'nurture industrialization for economic transformation and human development.' The economy-wide strategy is heavily focused on developing Tanzania's energy sector - including plans to expand electricity access, the transmission network, and installed capacity. It is more focused on climate change adaptation than mitigation, and emphasizes hydro, coal and gas over wind and solar.

The original targets for share of renewables were laid out as a priority objective in Tanzania's 2010 National Strategy for Growth and Reduction of Poverty II (MKUKUTA II) under the broader goal 'Reducing Income Poverty Through Promoting Inclusive, Sustainable, and Employment-Enhancing Growth and Development'. The goal also included several additional energy targets relating to total generation, transmission and distribution expansion and rural electrification.

The targets were for 2010-15:

- Non-hydro renewable power generation: 4% to 6%
- Electricity generation: 1,064MW to 1,722MW
- Transmission and distribution lines: total length doubled
- Electricity access: 2% to 6% in rural areas, 14% to 18% nationally

The Ministry of Energy and Minerals added the small hydro portion to the target in its 2011 Medium Term Strategic Plan 2012-16.

The roadmap of 2014 added modest capacity projections of "envisaged growth" of 100MW of solar and 200MW each of geothermal and wind by 2025.

East African Community Import Duty Exemption

The East African Community - Rwanda, Burundi, Kenya, Tanzania and Uganda - has a common agreement on import duty waivers. In clean energy, this applies to equipment for the generation of solar and wind energy, including accessories and deep cycle batteries.

The agreement reduces import duties to 0% for the following technologies: "Specialised equipment for development and generation of Solar and Wind Energy, including accessories and deep cycle batteries which use and/or store solar power" (Part B-General Exemptions, paragraph 26).

Tanzania Small Power Producers Framework

Under the second-generation SPP framework, projects receive a fixed feed-in tariff allocated based on an administrative process to small hydro and biomass projects, and auctions for solar and wind. The government released the latest framework rules in January 2016. On 26 February 2016, the energy regulator (EWURA) approved the competitive bidding framework for solar and wind small power plants, and on 21 October 2016, the Electricity Infrastructure Procurement Committee was set up.

An SPP is defined as a generating facility < 10MW producing power from renewable or fossil sources, cogeneration or a hybrid system. Capacity may be bigger than 10MW but each PPA with the DNO is limited to 10MW. Excess power may be for own use or wheeled through the public electrical network to an eligible customer.

In January 2016, the energy regulator (EWURA) released the draft 'Second Generation Framework for

Small Power Projects'. These will now receive a fixed tariff for the lifetime of the PPA (subject to limited indexation). Historically the rates have fluctuated annually based on the distribution network operator's (DNO) avoided costs. Payments will be invoiced in US dollar and may be adjusted to another hard currency subject to the mutual agreement of the parties to the PPA. The selection method will vary by technology.

SMALL HYDRO & BIOMASS

- Small hydro and biomass projects of between 100kW and 10MW will now receive a fixed feed-in tariff for the lifetime of the PPA (subject to limited indexation).
- They will be chosen based on technology-specific costs.
- The feed-in tariffs will no longer distinguish between projects on the main grid and those on isolated mini-grids. As such, the rates for an off-grid project will be constant throughout the lifetime of the PPA even if the main grid reaches its location.

WIND & SOLAR

- The development of solar and wind projects of 1-10MW, or hybrid systems, will be procured through tendering a project site proposed by a bidder or a DNO.
- Solar and wind SPPs of capacity up to 1MW will be exempt from competitive bidding. Tariffs for these projects will be based on the approved feed-in tariff of a 500kW biomass project connected to the main grid PLUS a 5% premium and a 15% premium for those connected to isolated mini grid.
- For projects connected to the main grid, the initial capacity to be auctioned may not exceed the main grid reserve margin requirement (15% of the system's installed capacity). The amount must also be commensurate with existing or planned substation capacity – in other words, 241MW in 2014.
- For isolated mini-grids, solar and wind capacity will be auctioned where a DNO has identified unmet demand.
- Initially bidders will be able to propose up to 75% of the DNO's existing generating capacity – 1.2GW in 2014.

So that the competitive bidding could begin, the Electricity Infrastructure Procurement Committee (EIPC) was set up through the Electricity (Market Re-Organization and Promotion of Competition) Regulations 2016. This body's aim is to coordinate the procurement of electricity infrastructure, including renewables projects, and its first step will be to send out a request for qualifications. The whole bidding round is due to take around 16 months.

The tendering procedure is outlined in the 'Wind and solar solicitation 2016 concept paper' (see Legislation/Governance URL below).

BACKGROUND

Tanzania first introduced a regulatory framework for private developers of projects up to 10MW in 2008, which hinged on a standardised power-purchase agreement. In 2008 the Ministry of Energy and Minerals along with Tanzania's regulator, EWURA, created a regulatory and legal framework to facilitate and encourage construction of SPPs by private developers. SPP capacity was limited to 10MW and power was sold either on or off-grid via a Standardised Small Power Purchase Agreement (SPPA) at a defined tariff. There were separate versions of the SPPA, one for grid-connected projects and another for those selling to isolated mini-grids.

SPPs could sell power to Tanzania's main grid or to isolated mini-grids, and wholesale (ie, to a distributor) or retail (ie, directly to consumers). The generation facility could be larger than 10MW to power, for example, internal agricultural or industrial operations, but electricity exported could not

exceed that amount unless the offtaker set a higher cap, which it may do if desired. Within the 10MW limit the offtaker could not, however, refuse power from an SPP as they were categorised as 'must take facilities'.

For SPPs selling to a distributor -- ie, either the main grid or an isolated mini-grid -- the 'Standardised Small Power Purchase Tariff' (SPPT) was calculated annually and includes a price floor and cap. When a SPPA was signed, the calculated price for that year constitutes the floor and the cap is equal to 150% of the floor. Both of these apply over the 15-year term of the SPPA and protect both sides of the contract should the calculated price in future years be significantly lower or higher than expected. The SPPT for the coming year was calculated based on avoided costs for the distributor -- ie, an average of the short and long-run marginal costs -- and published annually on or before 30 November.

For SPPs selling retail directly to consumers, the developer submitted its costs, plus a reasonable profit, to EWURA. The tariff could be given on a per kWh basis, or a fixed monthly tariff determined by the anticipated consumption of the household or facility. This was developer preference, and highly dependent on whether or not the customer was metered.

Tanzania Rural Energy Fund

In the Rural Energy Act of 2005 the Tanzanian government established the Rural Energy Board to drive programmes designed to increase energy access in rural areas. Its primary instrument to fulfill its objectives is the Rural Energy Fund (REF), which makes grants and loans and is administered by the Rural Energy Agency (REA).

The mandate of the Rural Energy Board is to subsidise rural energy projects via grants to developers, including private and public organisations, cooperatives and community groups. The board heads REA, also created by the Act, which administers the REF, evaluates projects and developers for grants and other forms of technical and financial assistance, and prepares bid documents for competitive tenders. It also recommends qualified projects to the Board for approval to receive grants from the REF.

The REF is not set at a fixed sum, but is 'from time to time' by the board in consultation with the Minister of Energy and Minerals at an amount sufficient to meet its needs. Capital flows into the Fund via allocation in the annual federal budget, donations from international development finance institutions, levies on up to 5% of generation from on and off-grid facilities and fees collected by REA as part of administering its programs.

Tanzania's National Five Year Development Plan 2016/17 – 2020/21 (FYDP II) seeks to spend over \$9bn USD (15tr Tanzanian Shillings) on rural electrification-related projects from 2016-20.

Tools used by REA, available through REF:

- Grants for pre-/feasibility studies: up to \$100,000 or 80% of study cost
- Grants for customer connection to grid or mini-grid: \$500 per connection – max 80% of T&D costs of a project
- Construction loans: up to 70% of project cost (up to 85% for projects < 3MW) – term is 15 years with 5-year grace.

The Fund does not provide grants towards operating or debt-service costs of any project or developer.

Funding method

The REF is subject to an annual budgetary review. On 22 December 2015, the REA announced that the Swedish International Development Agency (Sida) will provide SEK 600m (TZS 145bn) and the UK government (through DfID) will provide GBP 30m (TZS 96bn) for the REF over five years. This amounted to some \$118m. In addition to funding from international organisations, the REF is funded via levies of up to 5% on the commercial generation of power to the national grid; fees from programmes, publications and other services provided by REA; and as interest or return on investments. For 2014 REF was funded at TZS 80.3bn (\$49.5m) with 51% coming from budgetary allocation, 33% from the Norwegian Agency for Development Cooperation (Norad) with interest on the Fund, electricity levies and pre-destination inspection fees furnishing the remaining 17%.

Feed in Tariff (FIT) [1]

Tanzania introduced a feed-in tariff scheme for small power producers (100 kW to 10 MW) in 2008 with the framework being reviewed in 2015. In the Second Generation SPP (Small Power Producer) framework, EWURA applies two approaches depending on the technology: Renewable Energy Feed-In Tariffs are applied for small hydro and biomass projects whereas a bidding approach is applied for solar and wind projects. The Second Generation SPP framework is based on guiding principles that include SPPs receiving a fixed tariff for the duration of the Small Power Purchase Agreement (SPPA). [1]

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