

# SAGCOT Investment Partnership Program

## Current and planned Power Infrastructure in the Corridor

Presentation by Hon Deputy Minister  
for Energy & Minerals – Energy  
to the Tanzania Agribusiness  
Investment Showcase Event

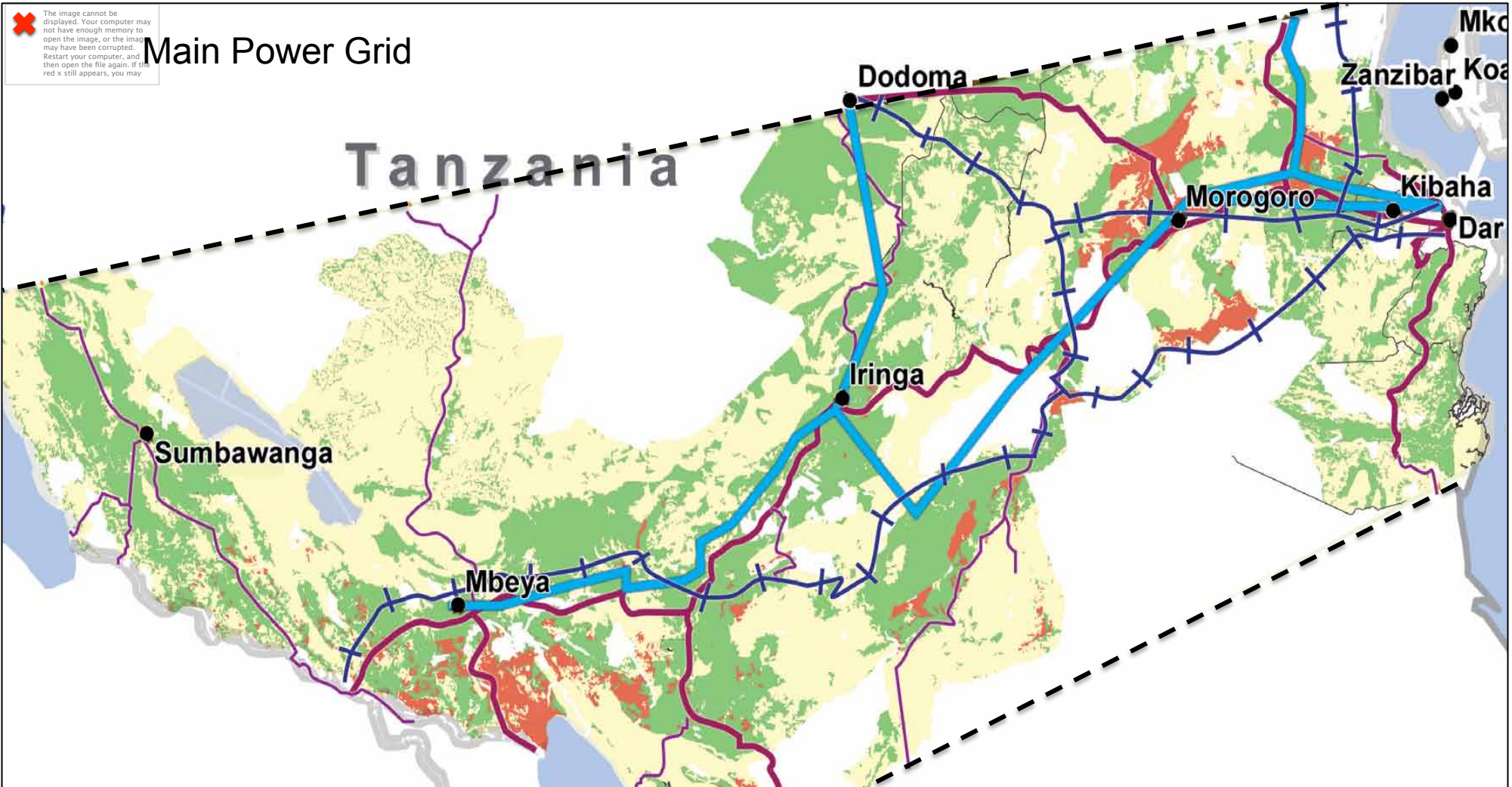
27 November 2012



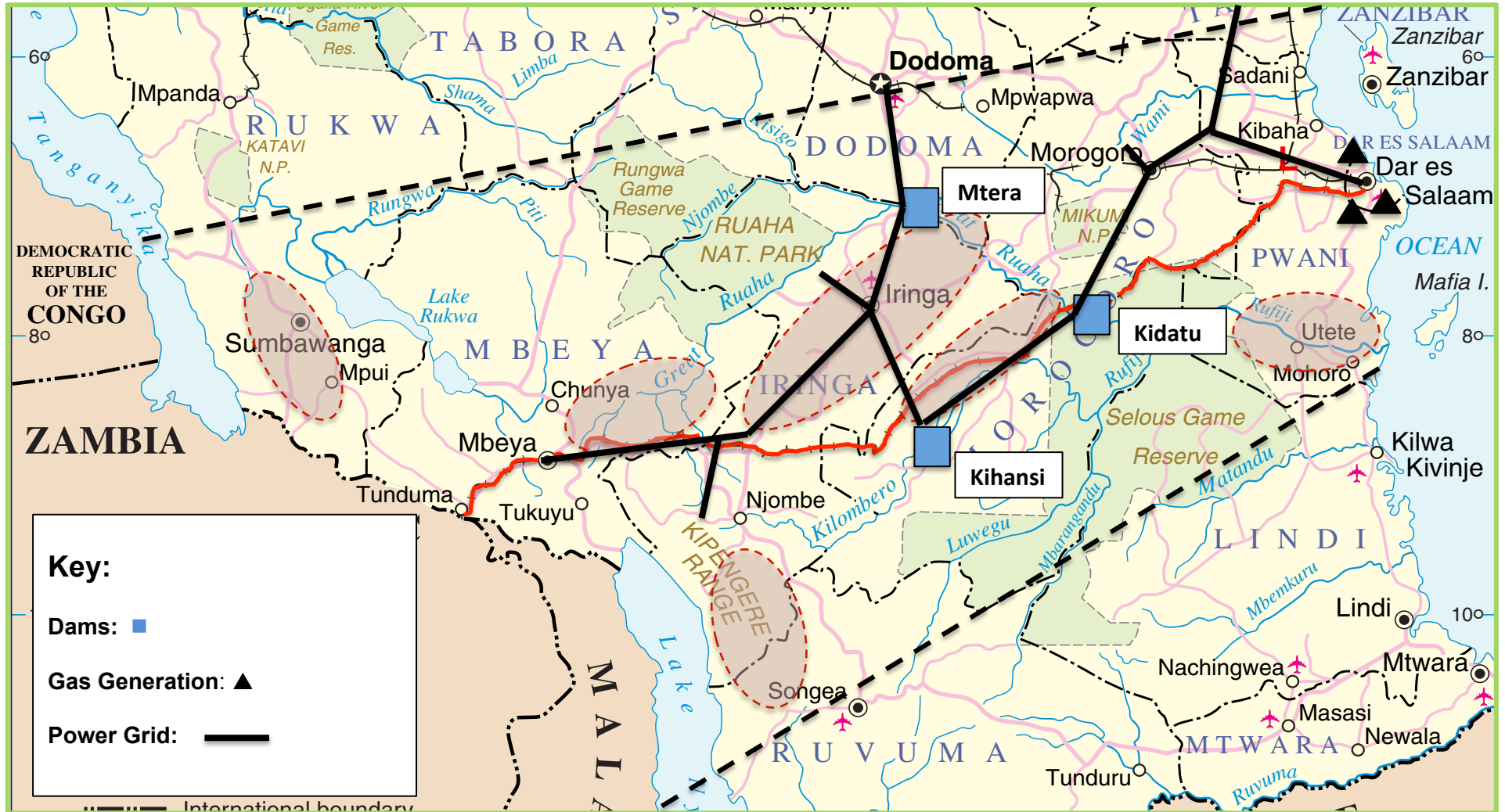
- Reliable **electricity supply** is critical for agriculture smallholders and investors to run irrigation systems, processing facilities, cold storage units and so on
  
- However, terms and conditions for **electricity off-take agreements** are an increasingly important factor for agribusiness investors who want to sell back to the grid the excess power that they can generate from waste biomass (begasse, rice husks, ranch biogas, abattoir waste)

**SAGCOT offers ideal conditions for electricity supply and off-take**

SAGCOT has an advantage in respect of electricity supply because the main transmission grid runs right through the corridor



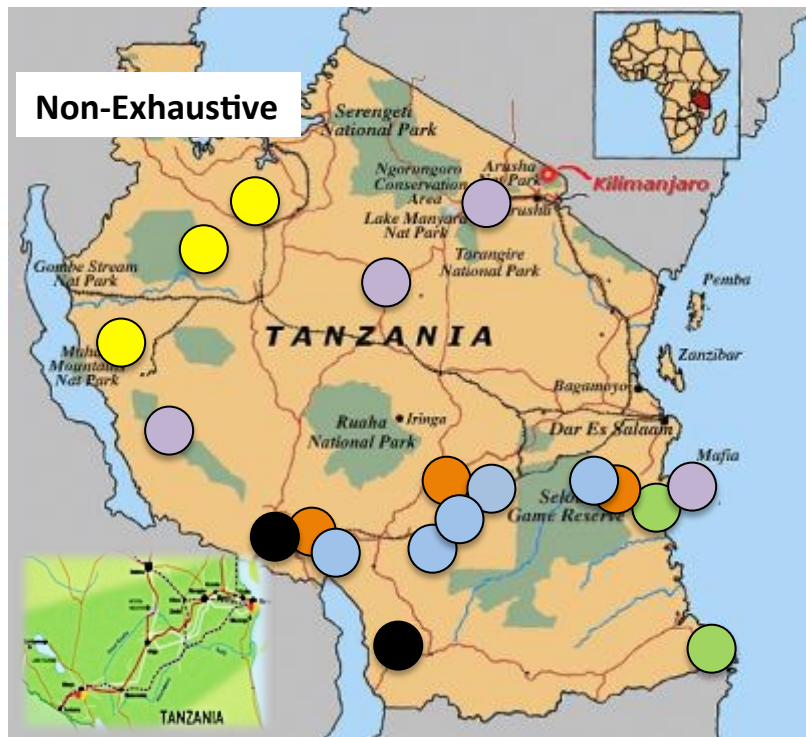
80% of Tanzania's total hydro capacity is generated in the corridor



With major transmission lines running right through each major agricultural area, connectivity for electricity buyers and sellers is easy

Tanzania has the natural resources to support more than 10,000 MW of power generation capacity when fully exploited (by 2033)

### Exploitable Natural Resource Zones



Total potential capacity for power supply is conservatively estimated at 10,000 MW. With potential demand expected to be less than 6000 MW<sup>5</sup>, more than **6000 MW could be exported**

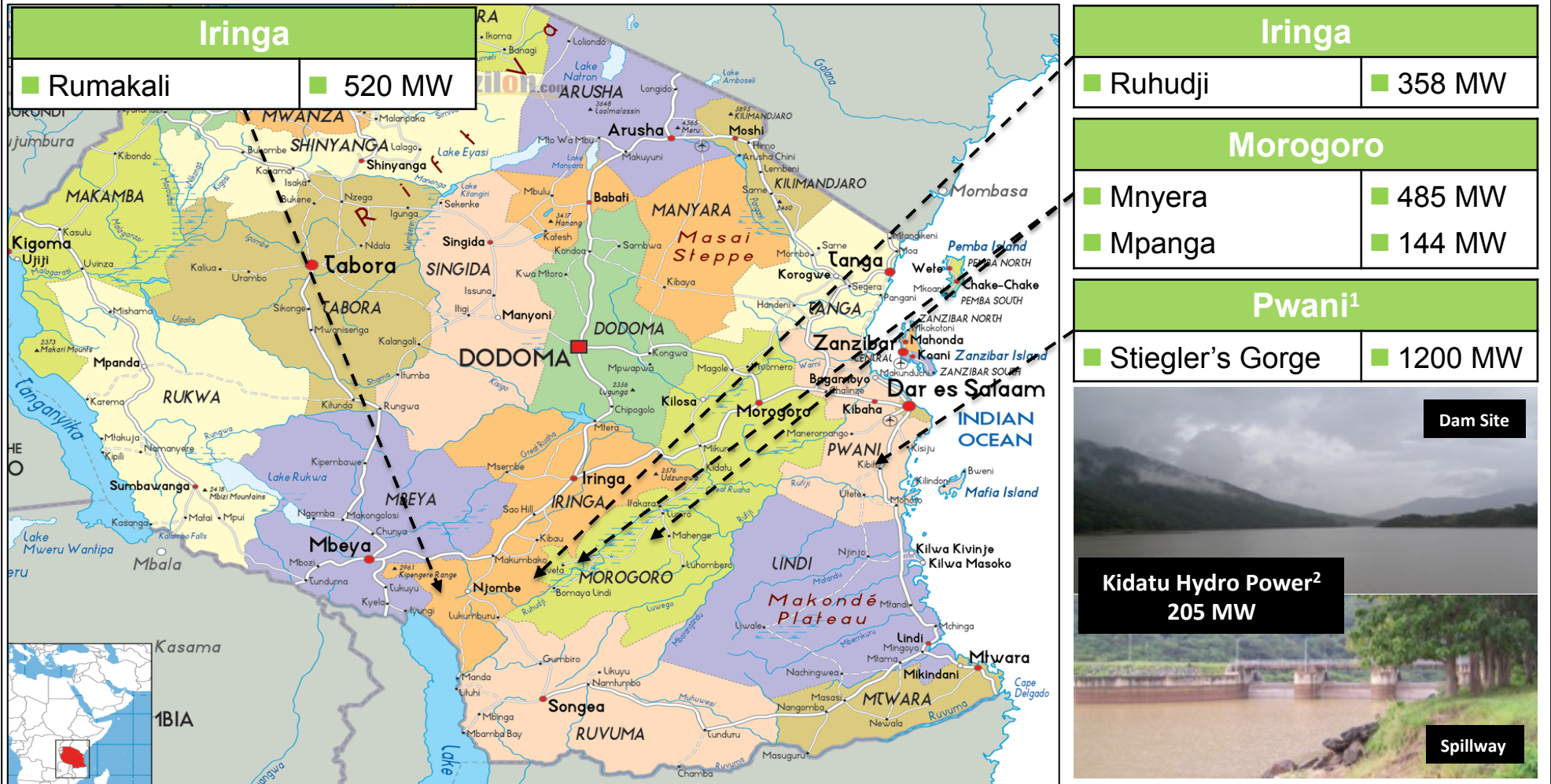
Potential		Observations
Supply	Capacity (MW)	
Natural Gas	● >3,900	Power generation using gas from Songo Songo, Mnazi Bay, (Mkuranga, Kiliwani-1, Pweza-1, Chewa-1, and Chaza-1) <sup>2</sup>
Coal	● 1,400	Power generation opportunities exist using coal from Mchuchuma, Ngaka and Kiwira
Hydro	● >4000 <sup>1</sup>	The potential for mini-hydro is being promoted in the rural areas
Wind	● >450 <sup>3</sup>	MEM and TANESCO are still doing assessments to confirm the wind energy potential, which is abundant in Manyara, Singida and Mbeya areas
Solar	● >700MW	The total potential is still unknown, but solar is being promoted for both off-grid and on-grid locations
Geothermal	● 650	There are at least 50 identified sites across the country
<b>Total</b>	<b>10,000 MW</b>	

Source: Ministry of Energy and Minerals (2012); Joint Energy Sector Review (2011)

Note: 1. Includes both small and large scale project estimates 2. New gas reserve discoveries under appraisal 3. Based on MEM's Budget 2011/2012 4. Based on existing installed solar power capacity estimates by MEM 5. Projected Demand in 2020 as per PSMP

## Location of Potential Large-Hydro Sites

Non-Exhaustive



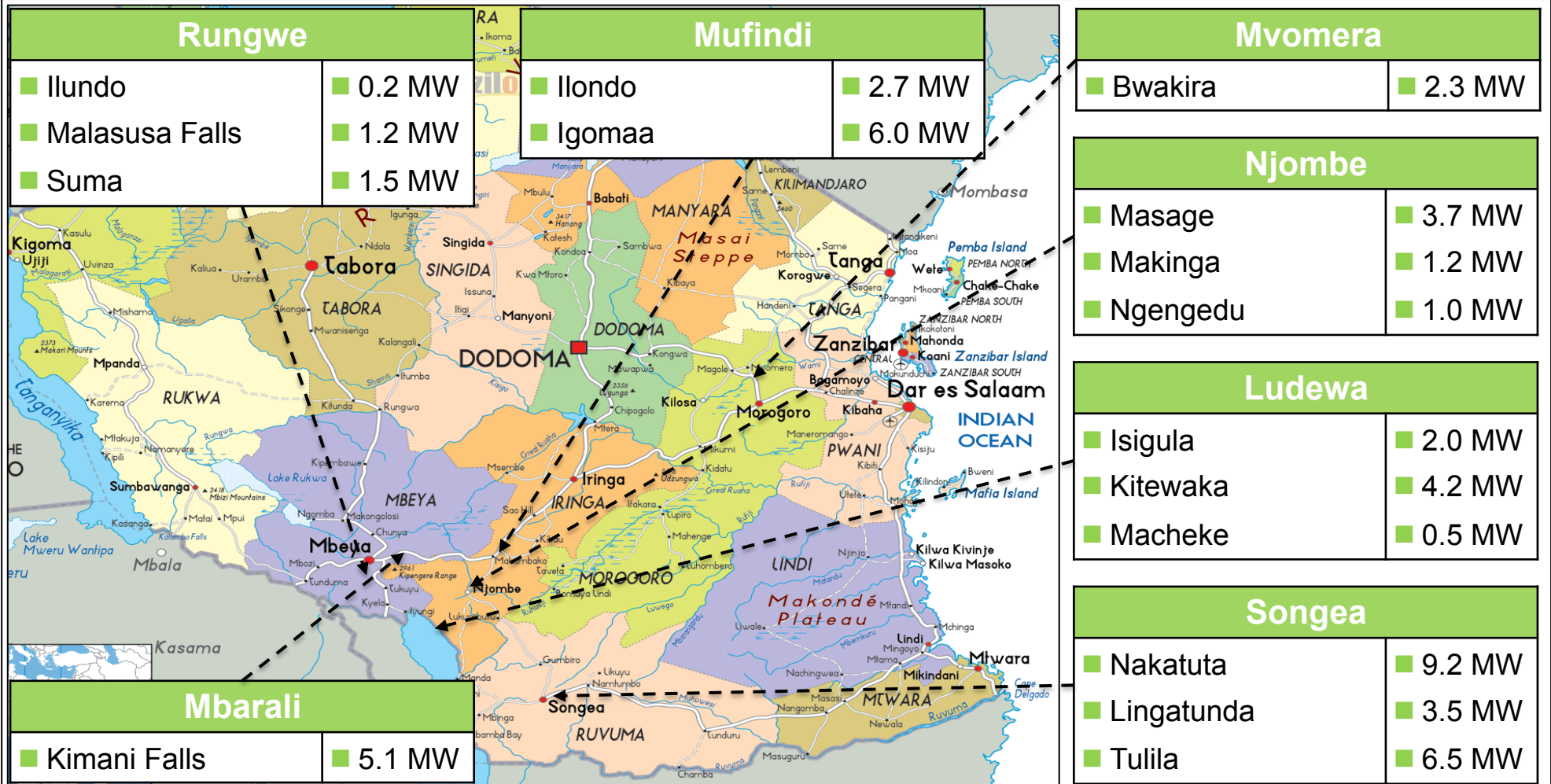
Source: Ministry of Energy and Minerals, PSMP (2012); RUBADA, Hydro Projects (2012)

Note: 1. The potential of Stieglers Gorge excludes 900 MW, which is for Steigler's IV – the PSMP only accounts for 1,200 MW for three Steigler Projects  
2. Kidatu is the largest hydro power plant in Tanzania

Again, there are several small and mini-hydro sites in the corridor and more than 300 of them have been identified to be feasible

### Location of Potential Mini-Hydro Sites

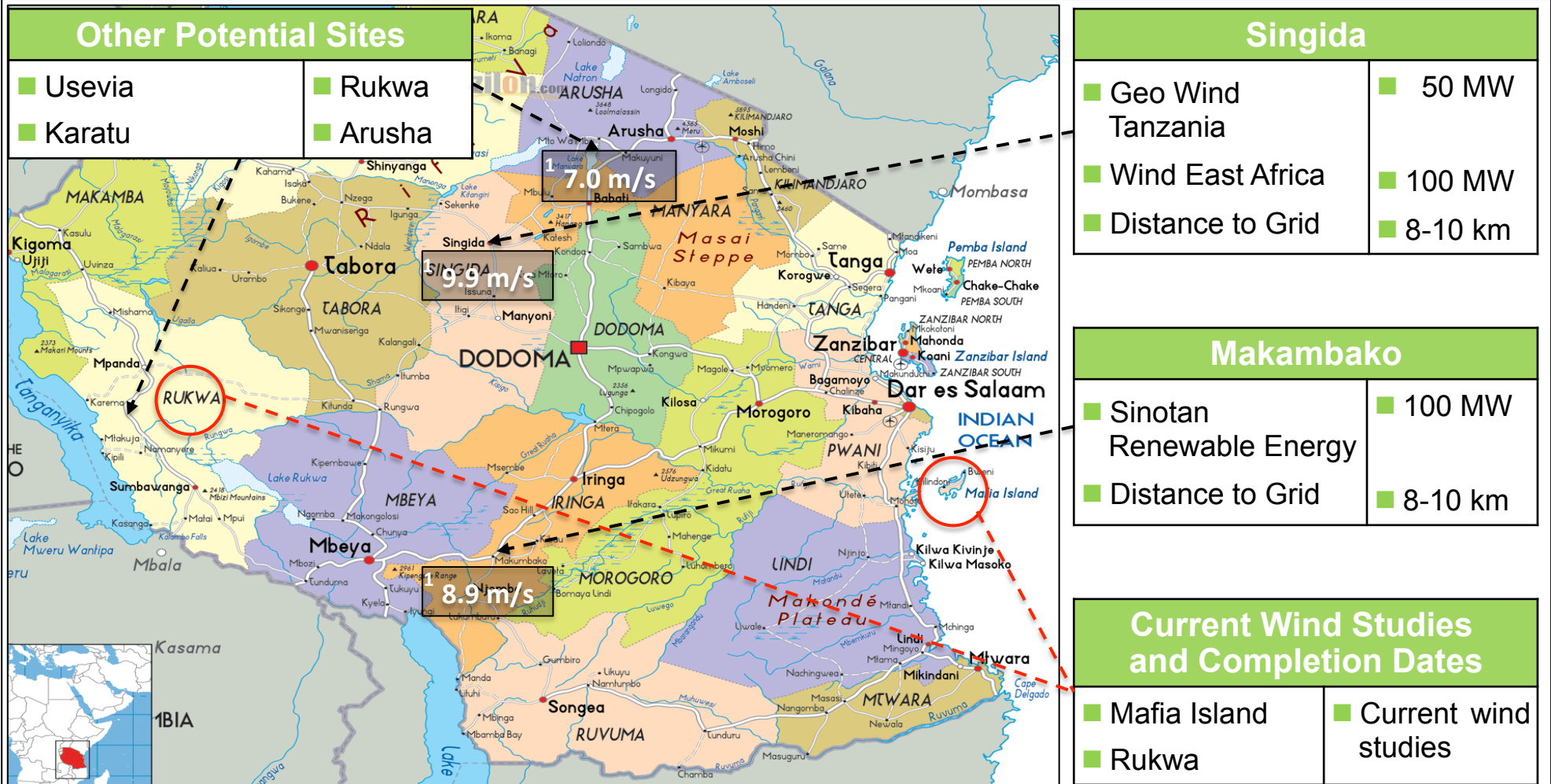
Non-Exhaustive



# Potential for wind power generation

## Location of Potential Wind Power Sites

Non-Exhaustive



**Wind Power Plants become highly cost competitive with Thermal Plants at wind speeds greater than 7.0 m/s**

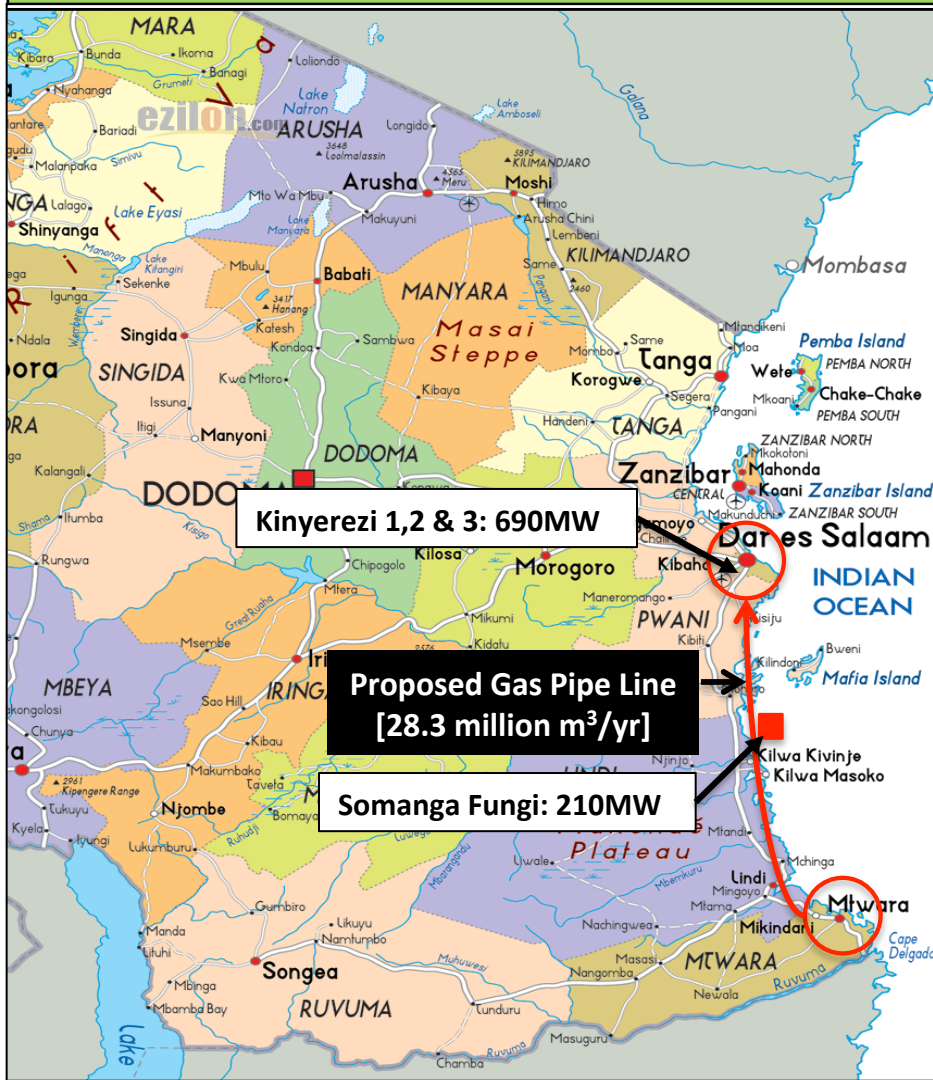
Source: Ministry of Energy and Minerals; Rural Energy Agency (2012); Miborrow (2010)

Note: 1. The annual average wind speed recorded

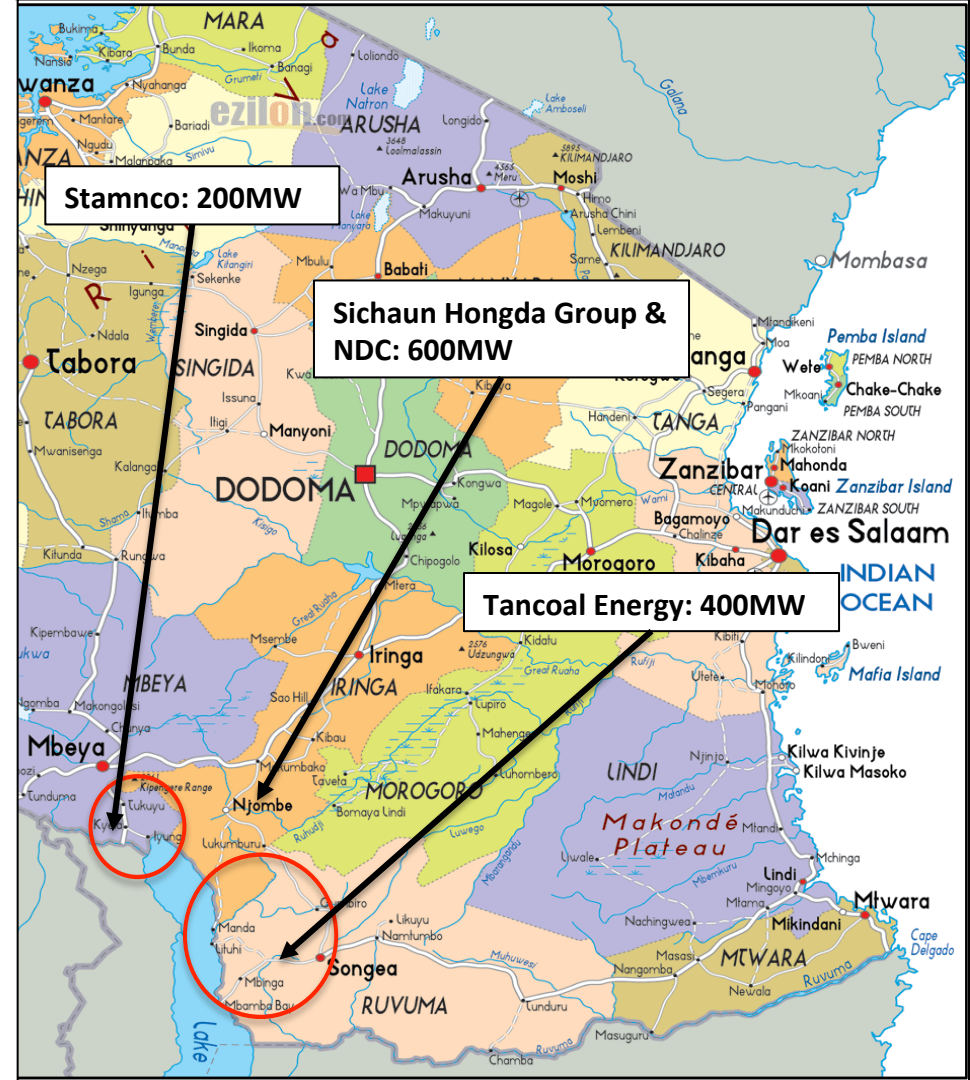


In addition to those sources I have already stated previously, there is a massive potential for gas and coal

### Potential Gas Power Sites



### Potential Coal Power Sites



## Standardised Power Purchase Agreement for Projects <10MW

Standard contract between Power Project Developer and Distribution Network Operator (DNO) for sale and purchase of electricity

### Terms & Conditions

- **Applicability:** All projects generating 100kW - 10MW
- **Must-Take Contract:** All energy supplied by the developer to the DNO will be purchased by the DNO
- **The SPPA Tariff:** is announced annually and is based on the DNO's Avoided Costs
- **Electricity Regulations (2011) Subsection 17:** instructs where electrical generation is to be done and requires the Licensee to enter into an implementation agreement with the local government
- **Community Consultation:** Investor/Licensee must consult the local community at the generation point to agree development activities with the community
- **Contract Duration** - the SPPA has a term of 15 years, starting from commencement date of operation

### Main Grid and Mini-Grid Tariffs

- **Main Grid:** 2012 Standardised Small Power Purchase Tariff is TZS 152.54/kWh, but this base rate changes seasonally:
  - Dry Season (Aug – Nov) TZS 183.05 /kWh
  - Wet Season (Dec – Jul) TZS 137.29 /kWh
- **Mini-Grid:** Standardised Small Power Purchase Tariff is TZS/kWh 480.50
- **Floor Pricing** – above tariffs are the price offered for all SPPAs executed in 2012, but if the above tariffs are less than the floor prices stated in any SPPA, the floor price previously stated in such SPPA will be paid
- **Pricing Cap** - will be 1.5 times the stated tariffs, adjusted for inflation on the basis of the five-year moving average of Tanzania Consumer Price Index

**Off-Grid/Greenfield based Small Power Projects can attract higher tariffs than Main or Mini-Grid SPPAs and can also benefit from subsidies offered by the Rural Energy Agency (REA)**

## Public Private Partnerships for Projects >10MW

- For larger (>10 MW) projects, TANESCO accepts proposals and depending on the funding requirements – the project is submitted to the Tanzanian Investment Centre PPP Co-ordination Unit for processing

### Terms & Conditions

- Applicability:** all projects generating greater than 10 MW
- The PPA Tariff:** is negotiated with TANESCO, but final approval is provided by EWURA (Regulator) as per S.25 of the Electricity Act 2008
- Electricity Act 2008 S.8 (2):** specifies conditions for obtaining a Generation Licence and terms under which licence remains valid
- Community Consultation:** the Investor/Licensee must consult local community at the generation point to agree development activities that are priority to the community
- Contract Duration** – is negotiated on a case-by-case basis

**EWURA is in the process of preparing a standardised procedure that will apply to larger power projects**

### Procedure for Handling Unsolicited Proposals

- Private investor presents letter of introduction to TANESCO
- TANESCO responds in writing and either requests a Project Concept or rejects the project
- Preliminary Acceptance Letter is issued for an acceptable Project Concept; Project Concept is submitted to TANESCO's board for approval
- MOU is signed upon board approval, this outlines roadmap and timeframe for subsequent processes
- Project Concept submitted to MEM & EWURA for comment
- Following MEM and EWURA approval of the Project Concept, Private investor initiates Feasibility Study and an Implementation Agreement can be obtained
- TANESCO issues a RFP, which specifies the terms of the draft PPA and the technical requirements
- With the response to the RFP and draft PPA, negotiation on a firm PPA commences
- Final approval of PPA is performed by EWURA

For any inquiries about power supply and power off-take agreements, please contact:

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**Please do let other companies know about the power sector opportunities in Tanzania: we plan to hold a series of similar events about power sector investment opportunities over the next year**