

# Project Preparation: Maximizing Financing Viability

## **A Private Sector Developer's Perspective** 5MW Solar PV at Kigoma, Tanzania

**UNOPS Webinar**

Co-hosted by SEforAll & Power Africa

**NextGen Solar**

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NextGen Solar

# About Us:

We are a Private Sector partner of US Government's **Power Africa Initiative** - highlighted as an example of a successful US-Africa partnership at the Leadership Summit in Washington DC.

As a Renewable Energy developer, our focus is on building & operating utility scale solar PV power plants in Sub-Saharan Africa and Small Island Nations. We have already set up operations in Tanzania, Kenya, Uganda & Seychelles. We intend to:

- Provide access to clean, reliable energy, by setting up **200MW** of generation capacity via several solar power plants – 70 MW in Tanzania, 50 MW in Kenya, 35 MW in Ethiopia, 30 MW in Ghana and 15 MW in Nigeria, representing total investment of **\$ 600 million**.
- Over the next 5 years, energy projects of NextGen Solar will not only increase access to electricity to **3.7 million** people, but also help in creating **431,000** incremental jobs in these countries.
- NextGen Solar aims to provide Power Africa countries with access to sector expertise in building **hybrid solutions**, by integrating legacy **diesel mini-grids** with modern **PV generation**.
- This investment strategy is expected to reduce the annual GHG emissions in these Power Africa countries by **300,000 tCO<sub>2</sub>** emissions per year.



NextGen Solar on the USG Power Africa website:  
<http://www.usaid.gov/powerafrica/partners/private-sector#ng>



# Setting the Stage:

- **“Viable”** Project:
  - Financial
  - Regulatory
  - Legal
  - Technological
  - Infrastructural
- Meeting the appetite of **“Financiers”**:
  - Financial
  - Project Risks
  - Environmental
- Investing in **“African Power”** market/sector:
  - Infrastructural
  - Macro-economic factors.

# Our Project Model:

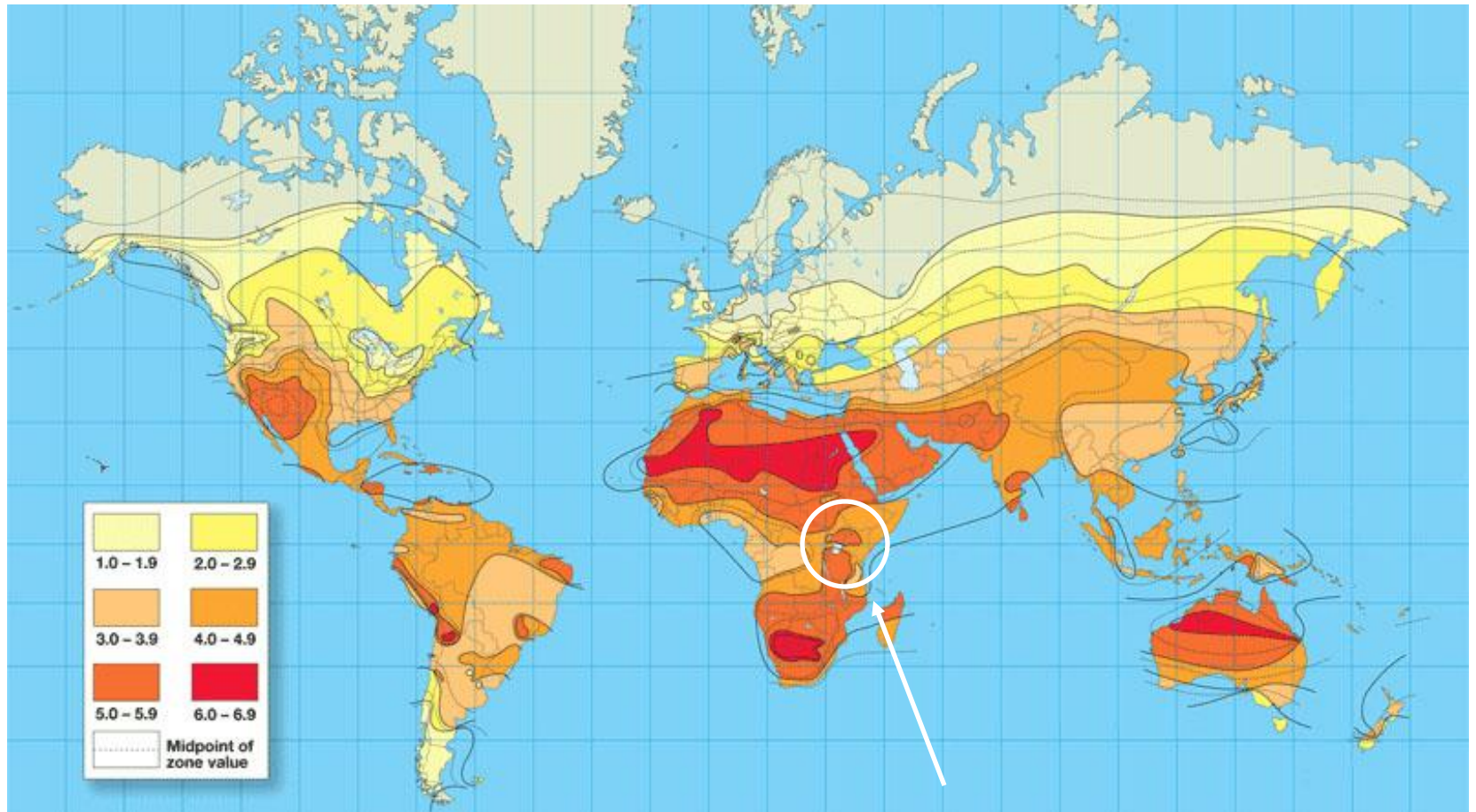
NextGen Solar (NGS) identified **Tanzania** to build and test the solar power plant model prior to scaling up to other utility scale, Main or Mini-Grid connected Solar PV power plants - in remote/rural, diesel-dependent areas of Sub-Saharan Africa and Small Island Nations.

- NGS has received a Provisional License to generate up to **40 MW** of electricity in Tanzania, connected to several Isolated Mini-Grids. Each site will generate between 1-5 MW based on local demand, under the **Power Africa Initiative**.
- NGS will supply all power produced to the state-owned utility company **TANESCO** based on a long-term **Power Purchase Agreement**. The power will be sold at the Tariff formulated & published by the Regulator **EWURA**.
- The first **5MW** demonstration plant is being set up at Kigoma, Tanzania. This is projected to **save** TANESCO over **\$1.2 million** per annum.
- Project Financing has **been committed** from Overseas Private Investment Corporation (OPIC) and ElectriFI (EU) with project development assistance from **USTDA, ACEF, ElectriFI** and **The World Bank**.
- The project will electrify over **150,000** rural households, displacing vast quantities of diesel fuel and act as a catalyst for attracting manufacturing units to the area.

# “Viable Project” - Solar PV for Tanzania:

- **Abundant solar radiation** – being in the *solar belt*, Tanzania receives between 7.7 – 9.6 hours of sunshine per day. Solar should be viewed as a valuable natural resource in Tanzania.
- Solar is very **scalable** – supply can be fine tuned to demand and increased in large or small steps, with short implementation timelines (weeks or months, instead of years).
- Solar will increase energy security by **adding to mix** of available energy sources.
- Solar plants can be **located close** to where the power is used, leading to significant system wide cost savings by eliminating the need to build costly transmission infrastructure and the resulting transmission losses.
- The cost of **imported oil** is projected to continue to increase over time – investments in Renewable Energy will decouple Tanzania from this uncertainty and volatility.

# Solar Insolation Map:



Insolation : 5-6 kWh/m<sup>2</sup>/day  
(2.5 times that of Europe)

# “Viable Project” - Development/Preparation:

- Feasibility Studies
- Regulatory Assessment
- Company/SPV Incorporation
- Technical Feasibility
- Financial Model
- Land Availability & Lease
- Provisional License for Electricity Generation
- Tax Registration
- Grid Assessment
- EPC Selection
- Letter of Intent for Inter-connectivity
- Power Purchase Agreement (PPA)
- Equipment Selection
- Environment Impact Assessment
- CDM Registration
- Annual CERs certification

Can only **now** initiate Project Financing process with Financiers

# Meeting the “Appetite” of the Financiers:

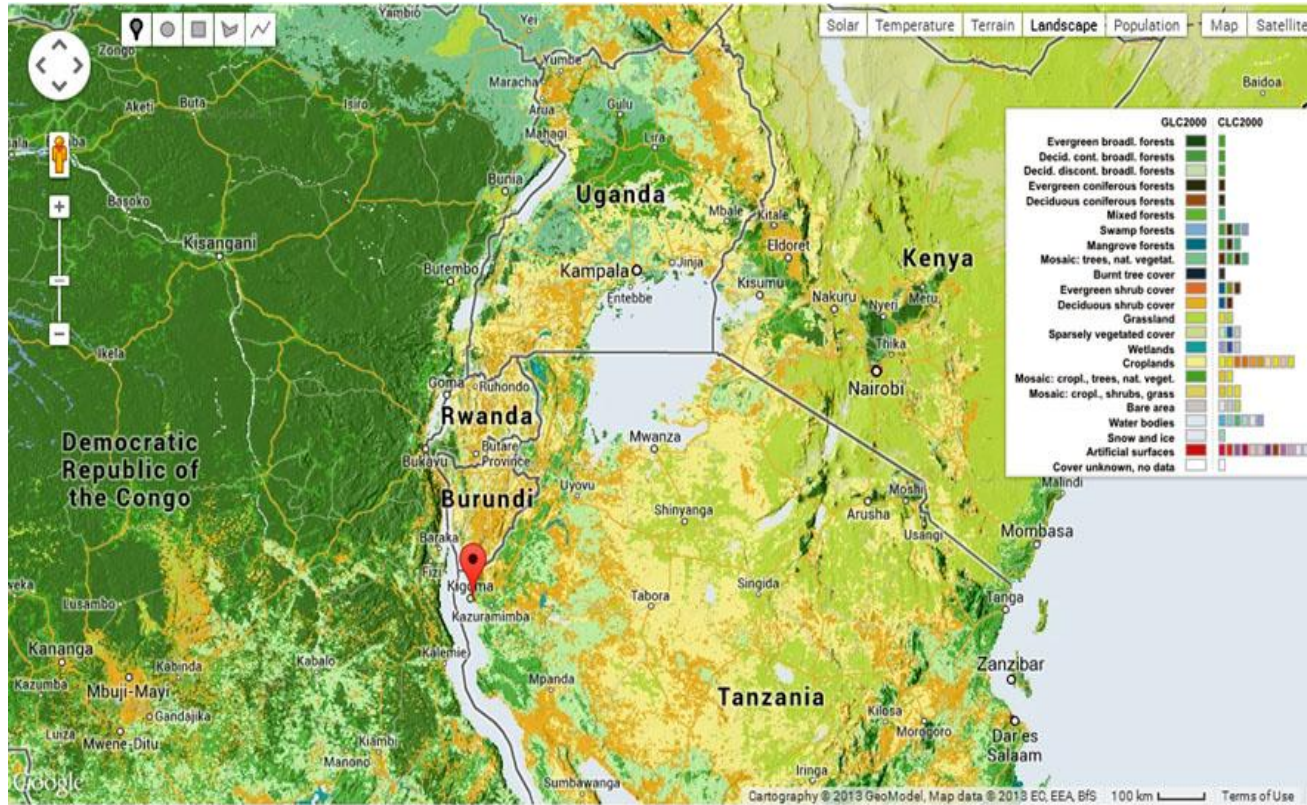
- Financial:
  - Revenue Uncertainty
  - Contractual
  - Delay/Non Payment by Off-Taker
  - Demand for Generation
  - Currency Convertibility
  - Currency Transfer Restriction
- Technological:
  - Equipment Failure
  - Intellectual Property Rights
- Regulatory/Economic:
  - Environmental
  - Exchange Rate Risk
- Political:
  - Expropriation/War/Civil Disturbance



# The African Power Sector:

- Infrastructural:
  - Suppressed Demand – a “promise” in future
  - Non-uniform Standards
  - Transmission Infrastructure
  - Immediate Need
  - Mini-Grids & Main-Grid
  - Grid Instability
- Heavy Reliance on Fossil Fuels:
  - Cost of Generation
  - Fuel Shortages/Blackouts
- Political Constraints:
  - Subsidizing Electricity
- Macro-Economic:
  - FX & Inflation Rates

# NextGen 5MW Solar Project at Kigoma



NextGen Solar has been designated as a Strategic Investor by the Kigoma Special Economic Zone as it is seen as catalyst for further economic development in the region.

# Development Benefits – Kigoma Region



# Kigoma Solar Project – Key Metrics:

Name plate capacity:	5MW
Project cost:	USD 12.5 million
Location:	Plot No 242-255, Kigoma Special Economic Zone
Electricity generation:	8,800,000 kWh/year
Households benefit:	17,500
Expected life of project:	25 years
Project investor:	NextGen Solawazi Limited
Financiers:	ElectriFI , Diamond Trust Bank (short term), OPIC (long term)
EPC Contractor:	Martifer Solar, Portugal
Owner's Engineer:	CEC&E, USA and EEI, Tanzania
Electricity supplied to:	Kigoma mini-grid operated by TANESCO
Planned construction start:	October 3, 2016
Planned completion date:	April 15, 2017

# Tchangachui Primary School, Kigoma-Ujiji Municipal Region



Excited to know that electricity can be generated from the sun – and soon will be available for their school from NextGen Solawazi solar plant across their school.

# Thank You!

Mayank Bhargava  
CEO & Founding Partner  
NextGen Solar  
[info@nextgensolar.net](mailto:info@nextgensolar.net)

Kigoma 5MW site can be “seen” on Google maps/earth at:  
<https://goo.gl/maps/9EpcRYwFMcP2>