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Resource Assessments in the CEC

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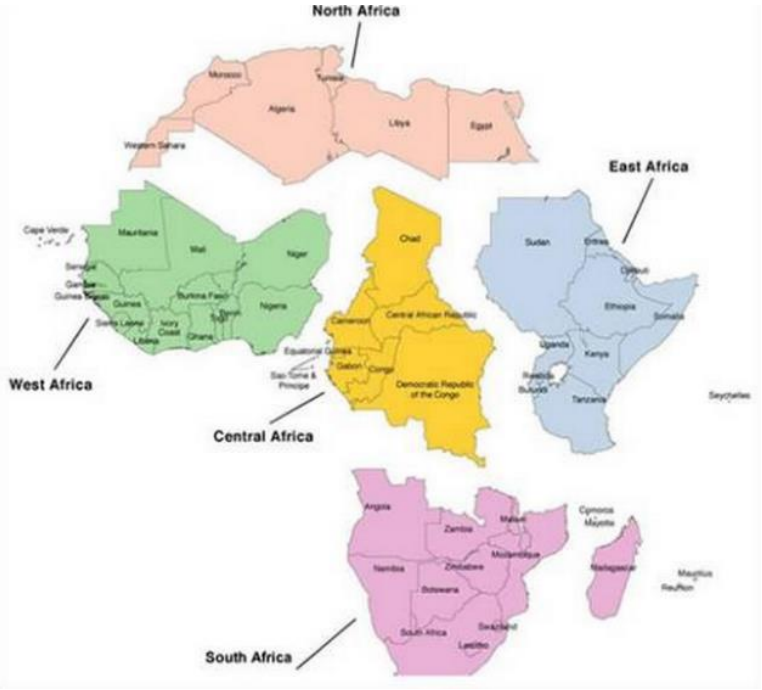
WHY MAPPING RENEWABLE ENERGY RESOURCES?

MAIN CHARACTERISTICS



	Variable	Base load
Wind	x	
Solar	x	
Hydropower	x	x
Geothermal		x
Marine	x	

- Lowest cost for consumers - optimisation at system level
- High share of renewable energy - where it makes economic sense
- Dealing with variability both in demand and supply - using synergies between the different sources and markets

RESOURCE SYNERGIES

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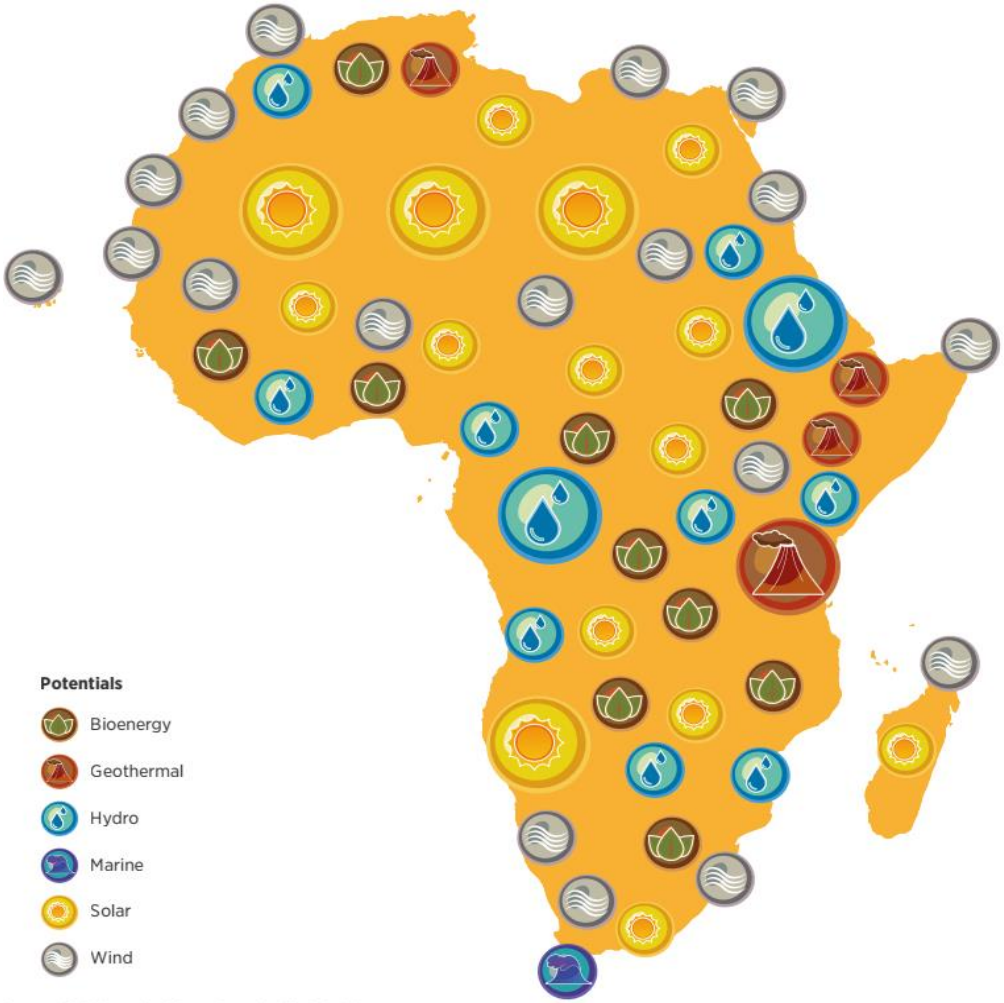


Source: IRENA analysis based on the Global Atlas

Bioenergy

Geothermal

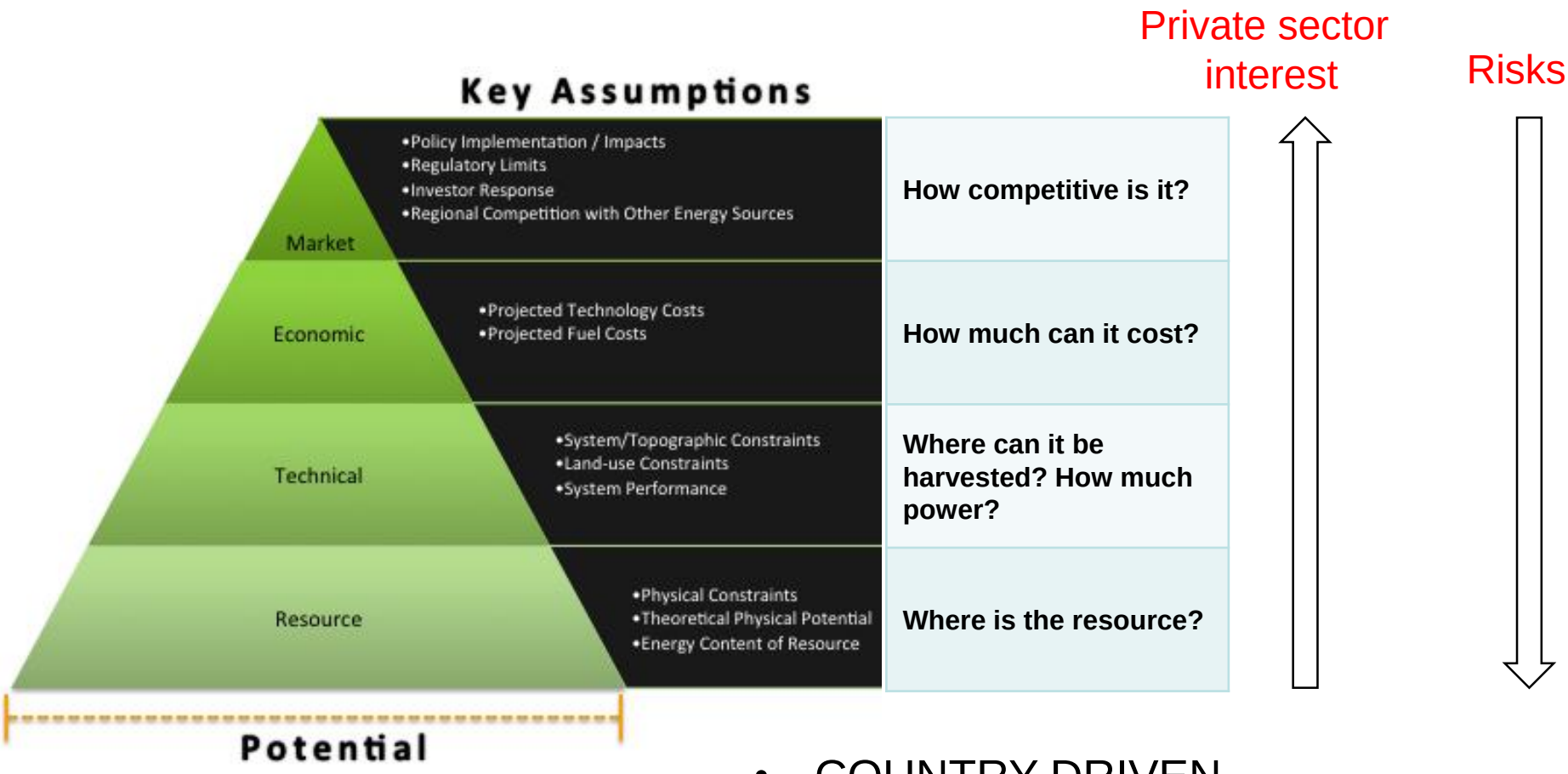
Hydro

Marine

Solar

Wind

WHY MAPPING POTENTIALS?



Conceptual diagram of Renewable Energy Potentials (from NREL, 2012)

- COUNTRY-DRIVEN
- LONG TERM PLANNING PROCESS
- COMMITMENT REQUIRED

INTENSE WORK IN CEC

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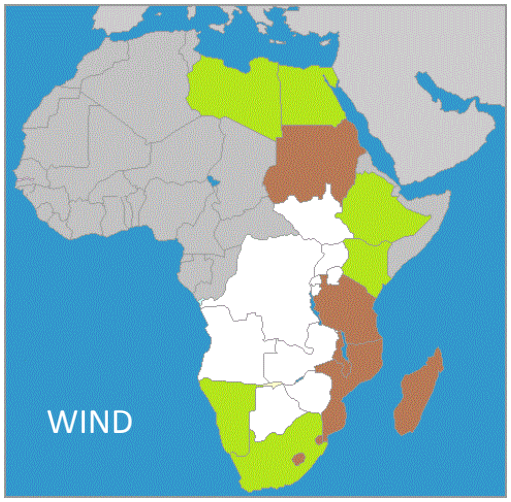

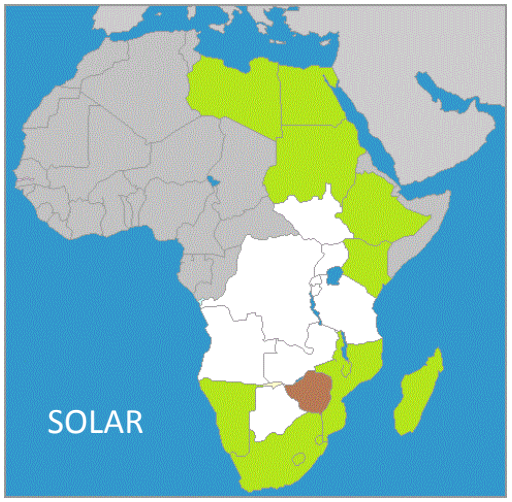

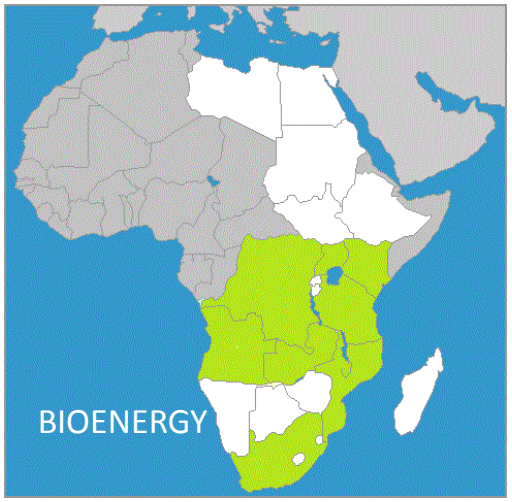

LITTERATURE ASSESSMENT. IDENTIFIED MAPS AND MEASUREMENT CAMPAIGNS.

Country resource map identified (official or not)

Measurement points identified or referenced by the literature.

A STRATEGY FOR THE CEC?

Do not let what you cannot do tear from your hands what you can. (Ghana)

WHAT HAPPENED IN 10Y?

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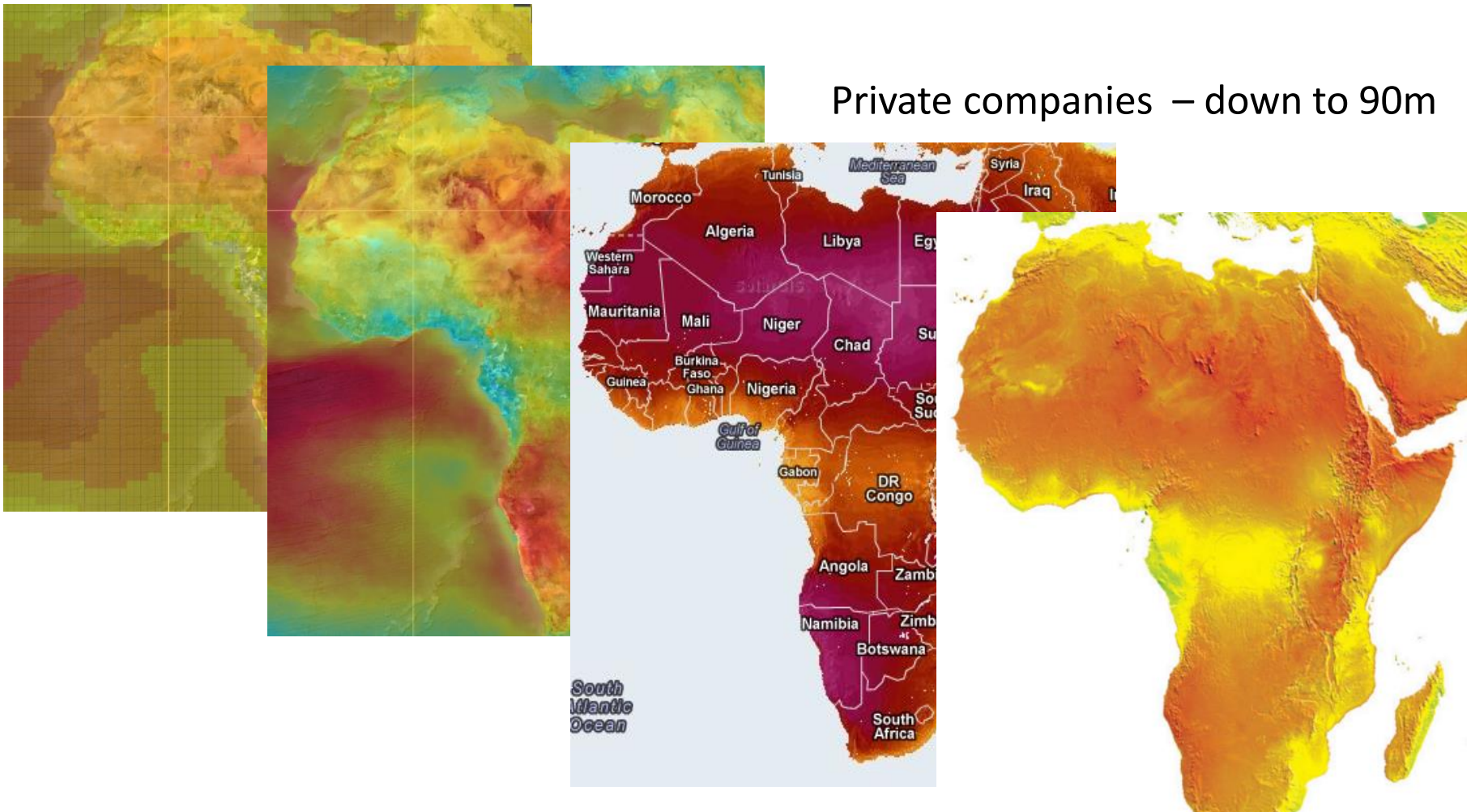
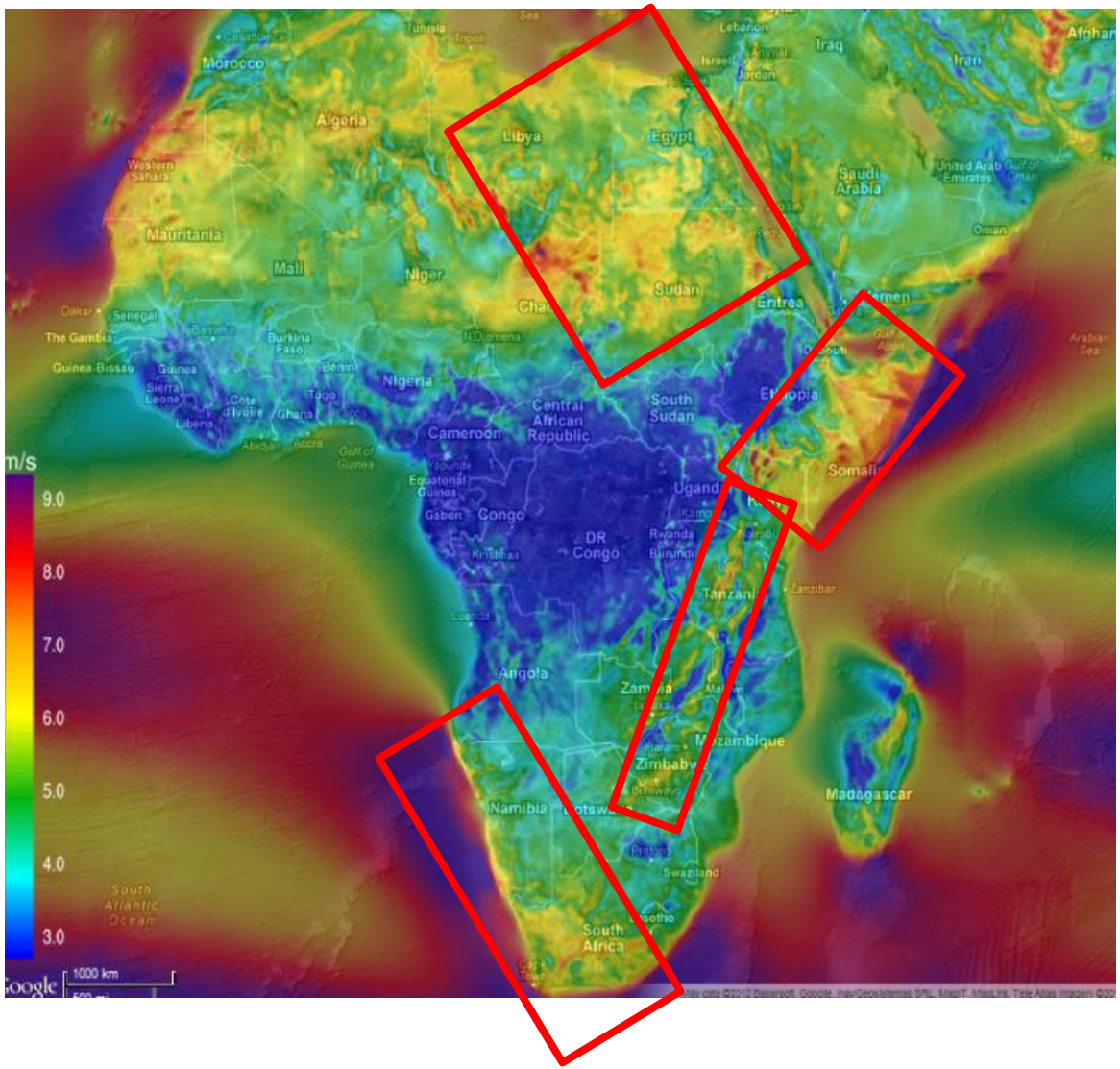
NASA 2008 - 1x1 deg

Helioclim 2005 – 20 x 20 km

Private companies – down to 90m

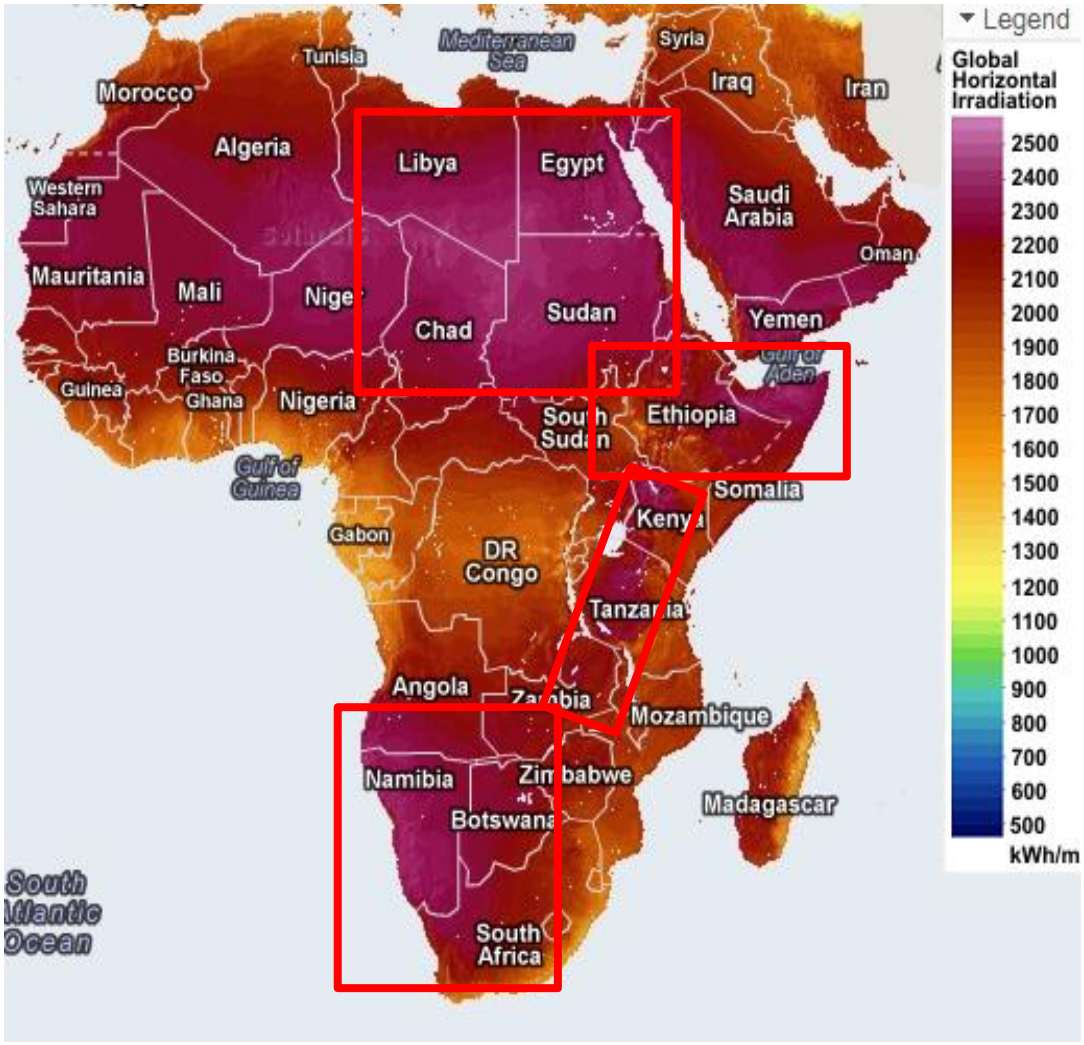




Winds in the East African corridor. Mesoscale 9km basemap extracted from Vortex, Spain. Average annual wind speeds at 80 m high.

The values can not be used without validation, but the wind patterns appear clearly, and are consistent with other mesoscale sources. The boxes attempt to highlight areas with possibly strong annual average wind speeds.

This rough approximation does not exclude the possibility of good wind sites outside the red squares, due to local effects not captured by the mesoscale model.



Solar Global Horizontal Irradiance in the East African corridor. Map extracted from SolarGIS (Geomodel Solar).

The data is derived from satellite images, recalibrated on ground measurements. The values can not be used locally without validation, but the patterns appear clearly, and are consistent with other sources. The boxes attempt to highlight areas with highest irradiation values.

This rough approximation does not exclude the possibility of good sites outside the red squares, due to local effects not captured by the model.

A STRATEGY FOR THE CEC?

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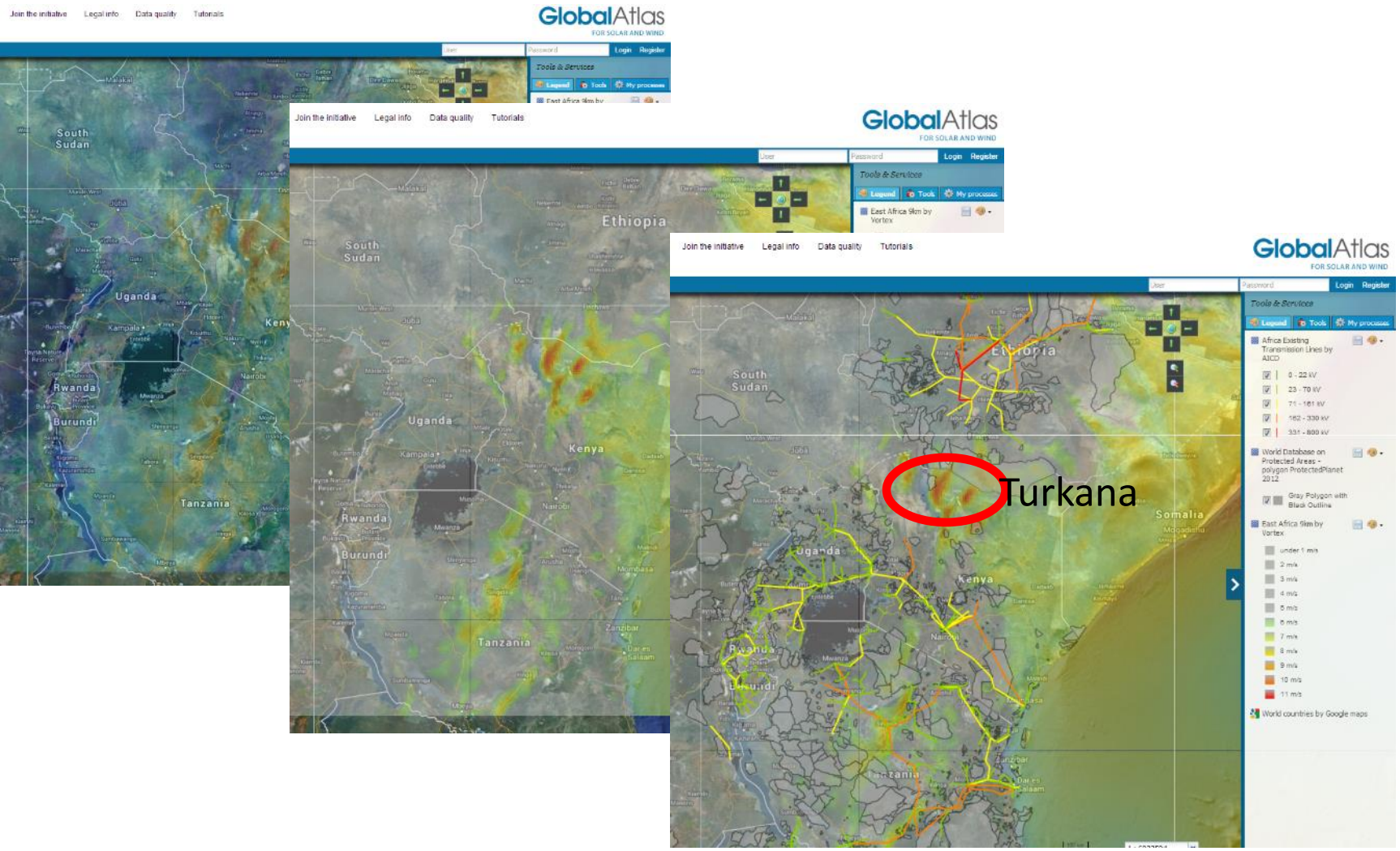
Mesoscale

High resource?

High opportunity?



STEP BY STEP ANALYSIS

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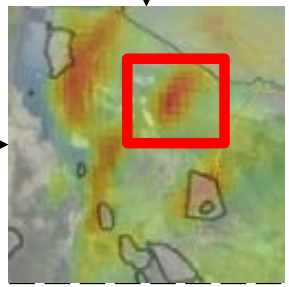
PRIVATE SECTOR EFFORT

Local measurements

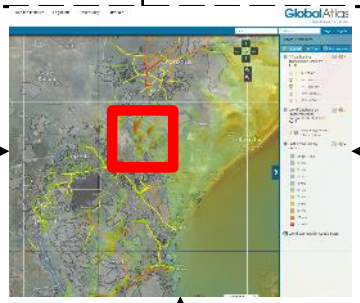


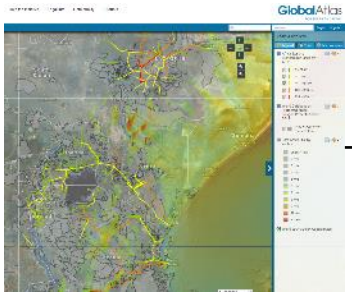
Data bankability

Investor's interest

GlobalAtlas

Existing local measurements





PUBLIC SECTOR EFFORT

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Albania, Australia, Belgium, Denmark, Egypt, Ethiopia, France, Gambia, Germany, Grenada, Honduras, India, Iraq, Israel, Kuwait, Lithuania, Mali, Mexico, Mongolia, Nicaragua, Niger, Nigeria, Norway, Peru, Qatar, Saudi Arabia, Senegal, Seychelles, South Africa, Spain, Swaziland, Switzerland, Tunisia, UAE, Uganda, UK, Uruguay, USA, Yemen.

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Renewable Energy Resource Mapping

GlobalAtlas SolarandWind

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