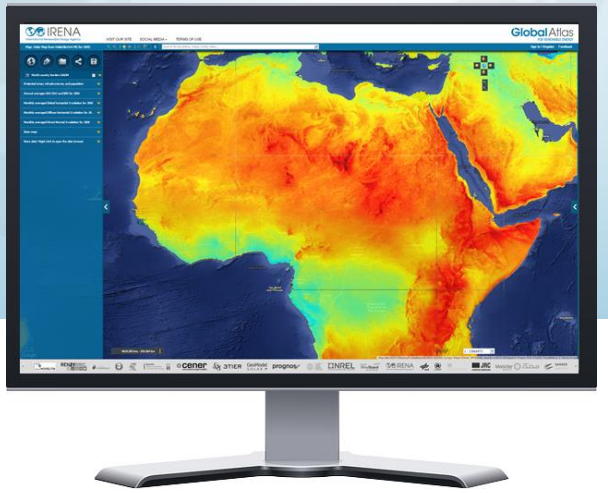
The IRENA Global Atlas for Renewable Energy

GEO2017 23-26 October 2017
GEO-XIV Plenary

Side Event: GEOSS, Renewable Energies, research community and commercial sector: GEO Vision for Energy Initiative

Washington D.C., United States of America
October 24th, 2017



Jacinto Estima, PhD
GIS & Information Systems Consultant
International Renewable Energy Agency (IRENA)

Mission Statement

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International Renewable Energy Agency

"IRENA's Renewable Energy Prospector"

The Global Atlas facilitates access to renewable resource data, analysis and methods in order to accelerate the initiation and development of a broader range of renewable energy projects.

Support SDG goals

- Provide free resource data for all
- Shorten the project life cycle
- Optimize development and cut costs

When is the Global Atlas used?

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Global Atlas maps can help identify the best general areas for project siting.

Tools and data support pre-screening and pre-feasibility analyses by estimating project output and helping attract investors.

Investors can use estimated outputs and resource maps to cross-check developer proposals.

Bankable data is needed here. The Global Atlas can help connect developers with sources of this data.

Better resource data reduces risk over the life of the project, increases valuation and speeds up the process.

Renewable energy project development process

Who Uses the Global Atlas?

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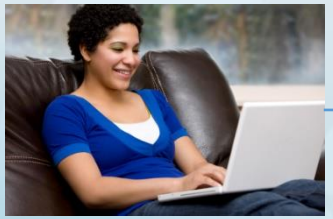
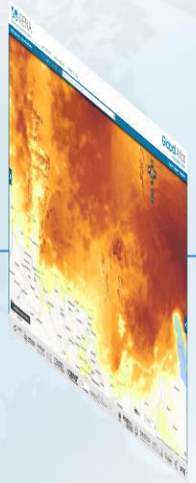
Policymakers and Governments		*How big?*
City and energy planners & land administrators		*Where?*
Developers and business leaders		*How much?*
Modelers and analysts		*Where is the data?*
Educators		*How can I learn?*

How the Global Atlas Works

What you see





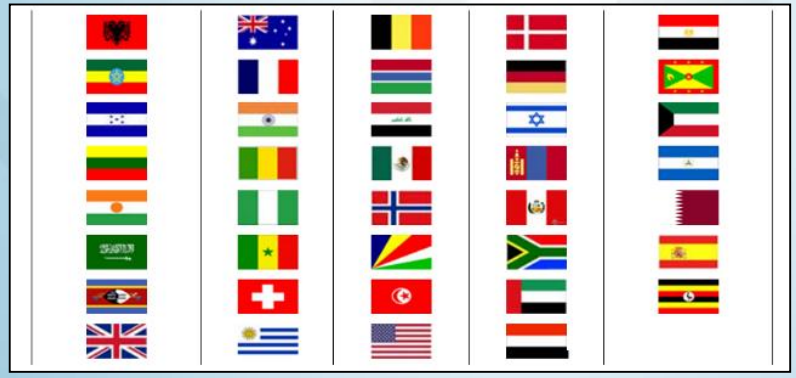
What is happening

GeoServer

MapServer

Who's making it happen

Partner Countries



Over 2000 datasets available!

How the Global Atlas Works

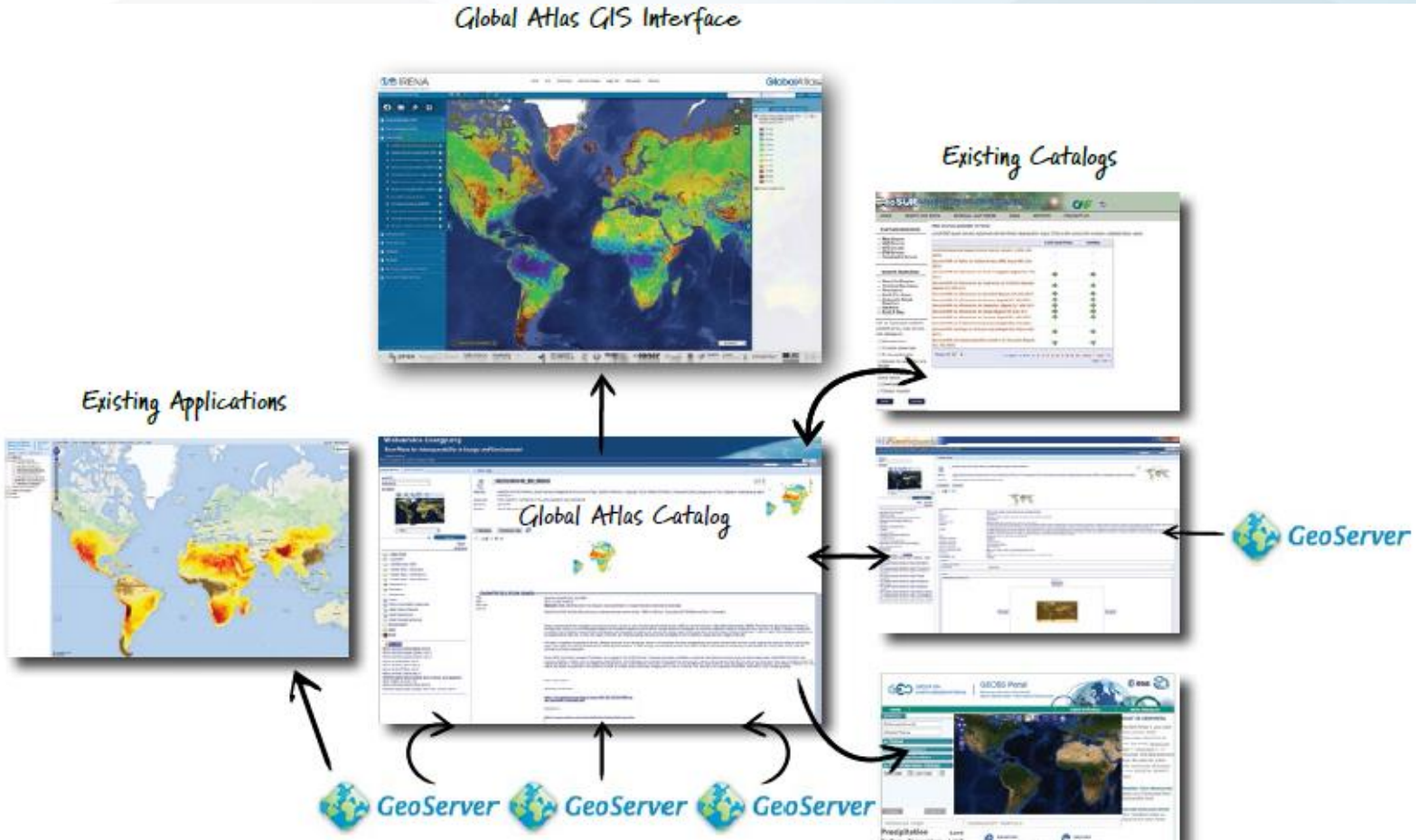
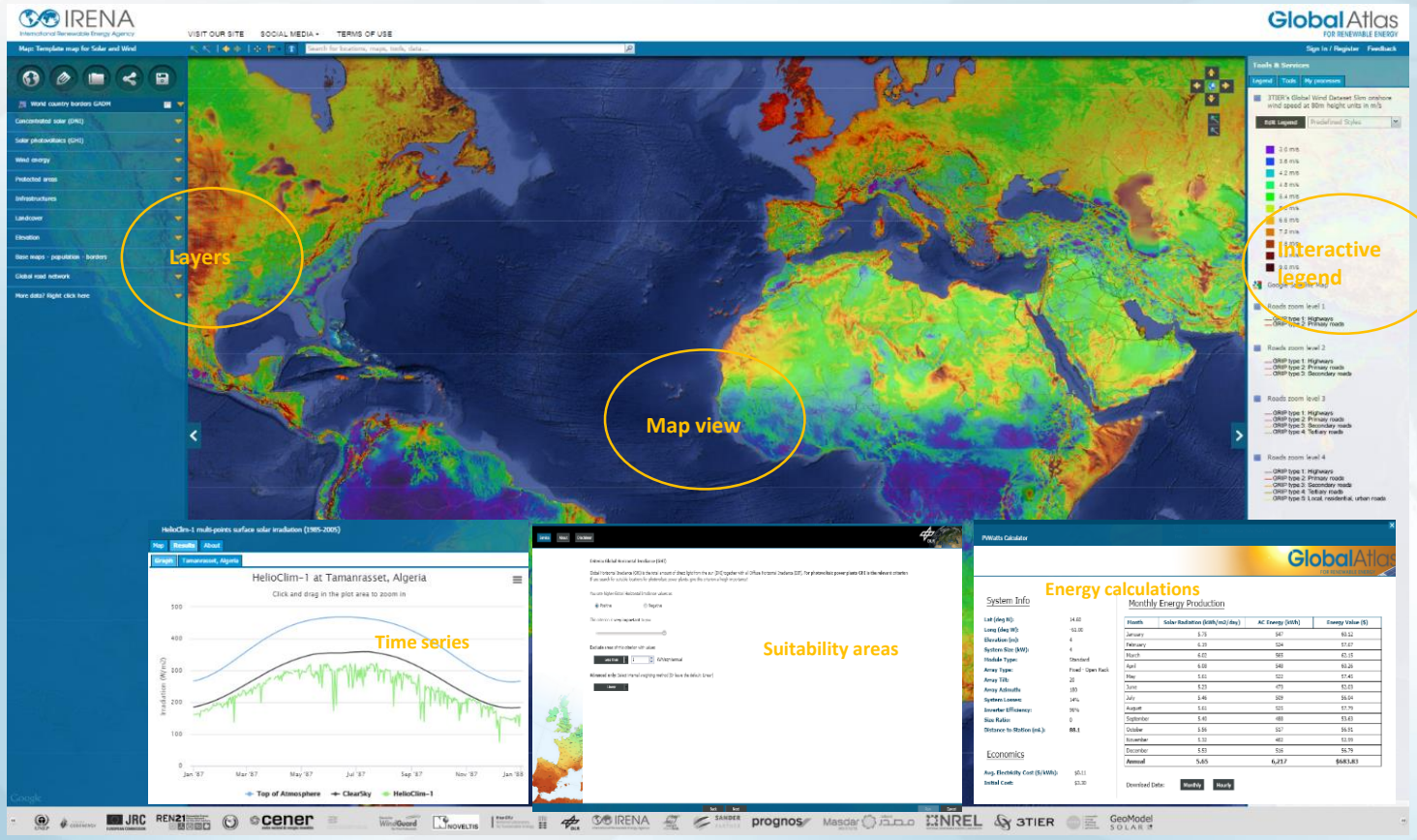


Figure 1. Global Renewable Energy Atlas architecture

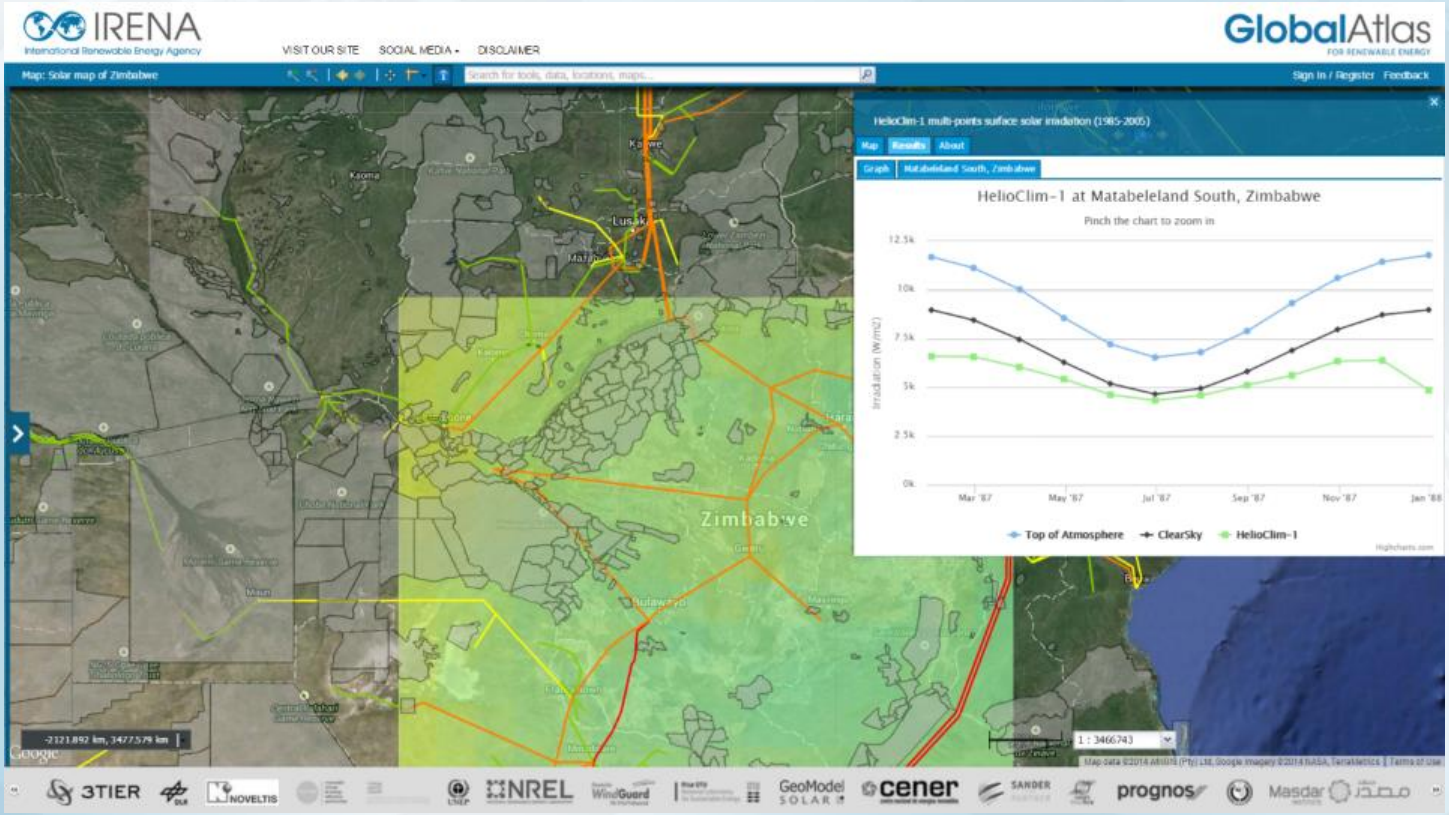
Where does the data come from?

Data layers, visualization and analytical tools, in one platform

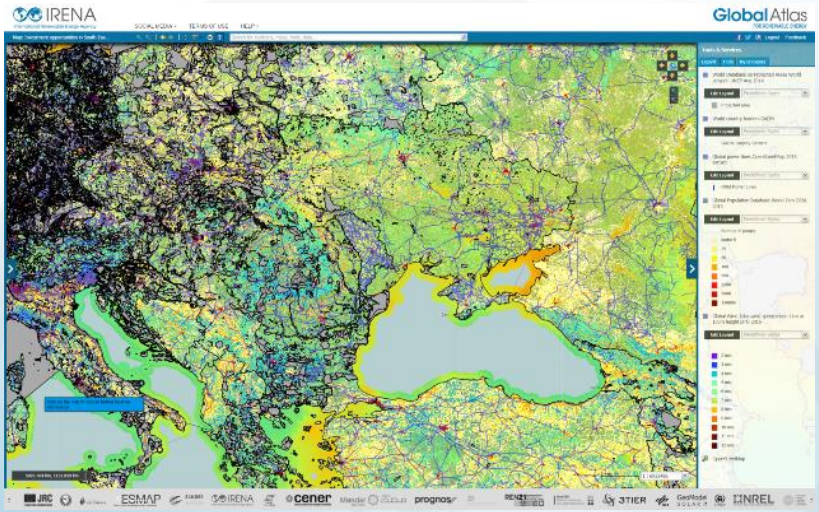


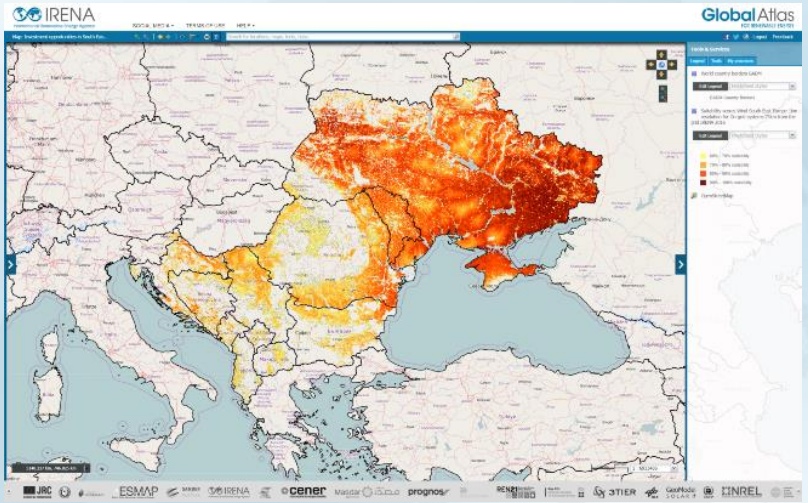
Where does the data come from?

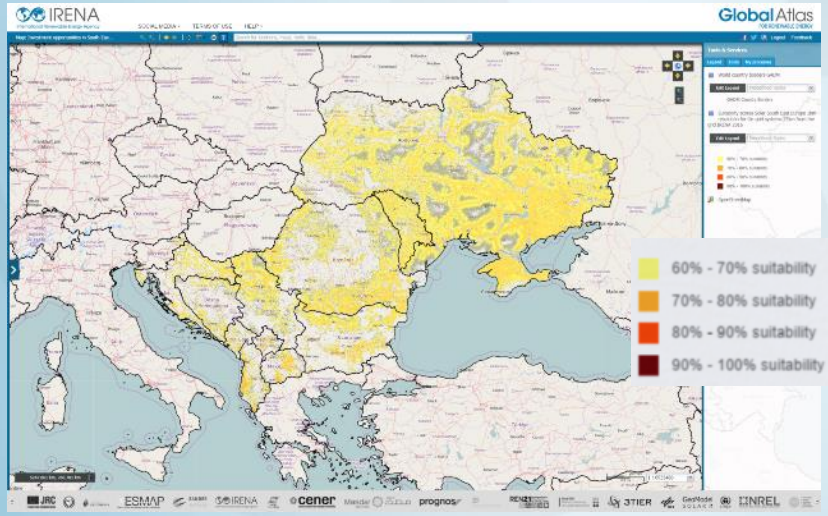
Online prospection of RE opportunities



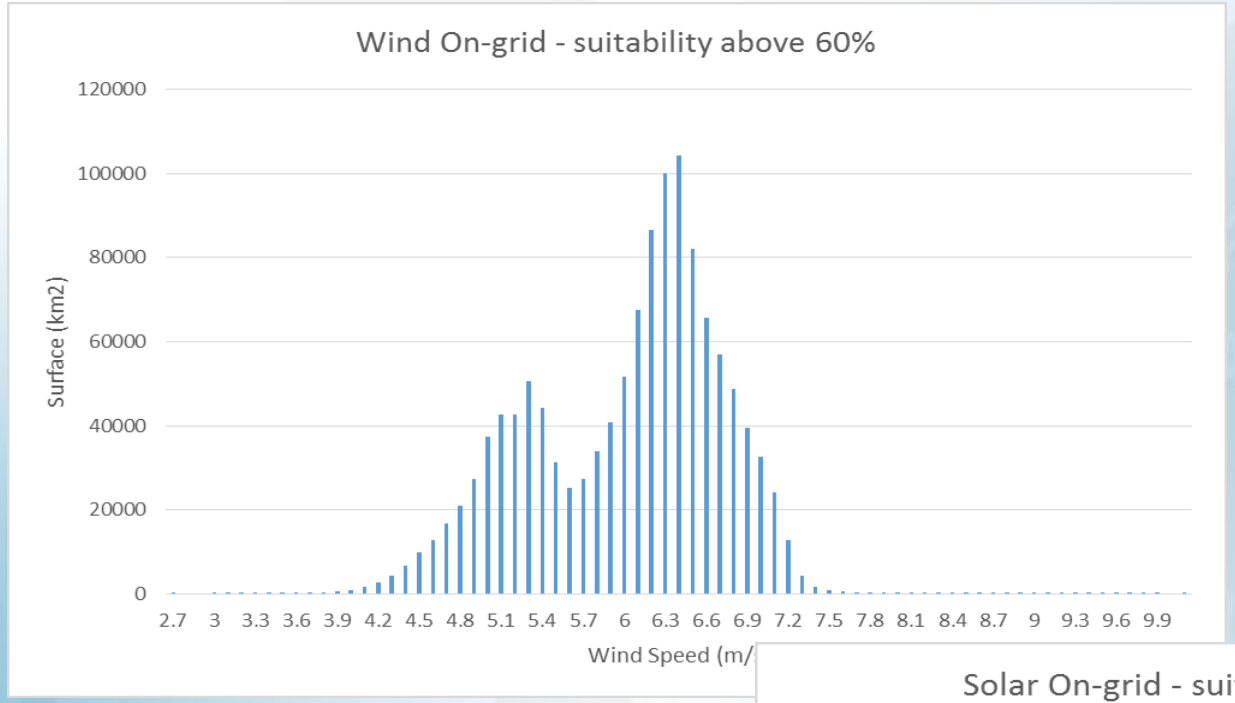
Dealing with complexity to help decision making

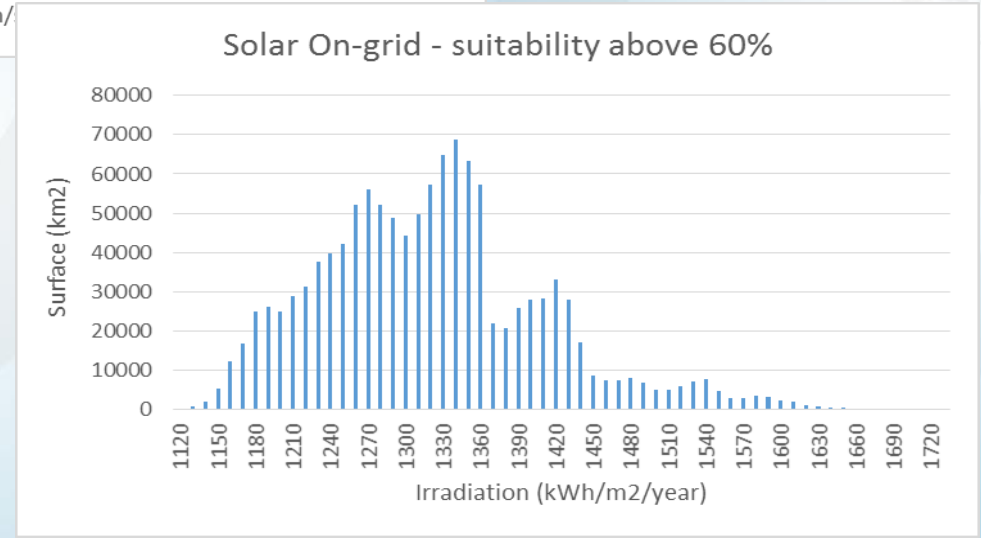




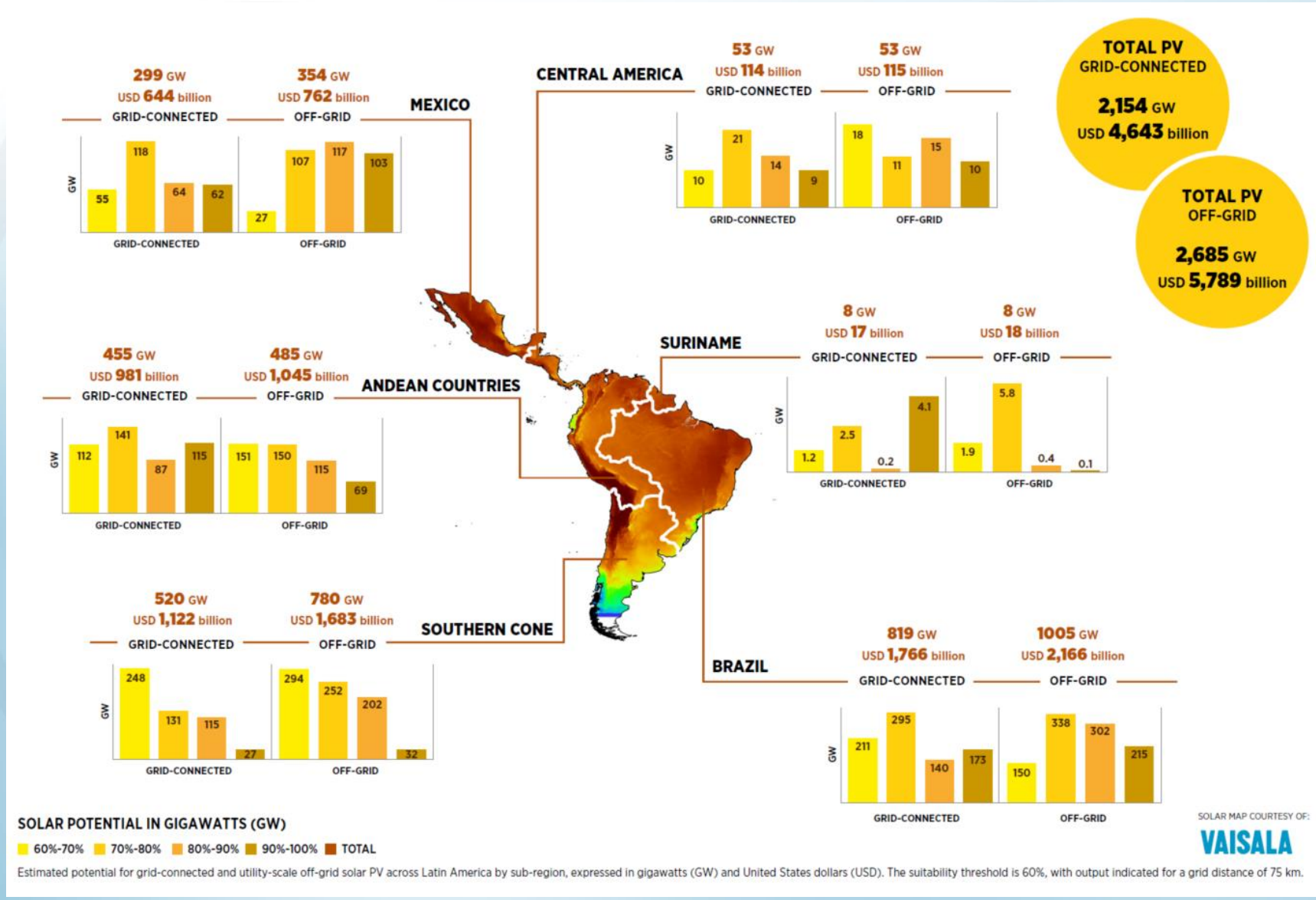


Derivative output: potentials in numbers





Derivative output: technical potentials



Esmap – world bank solar map

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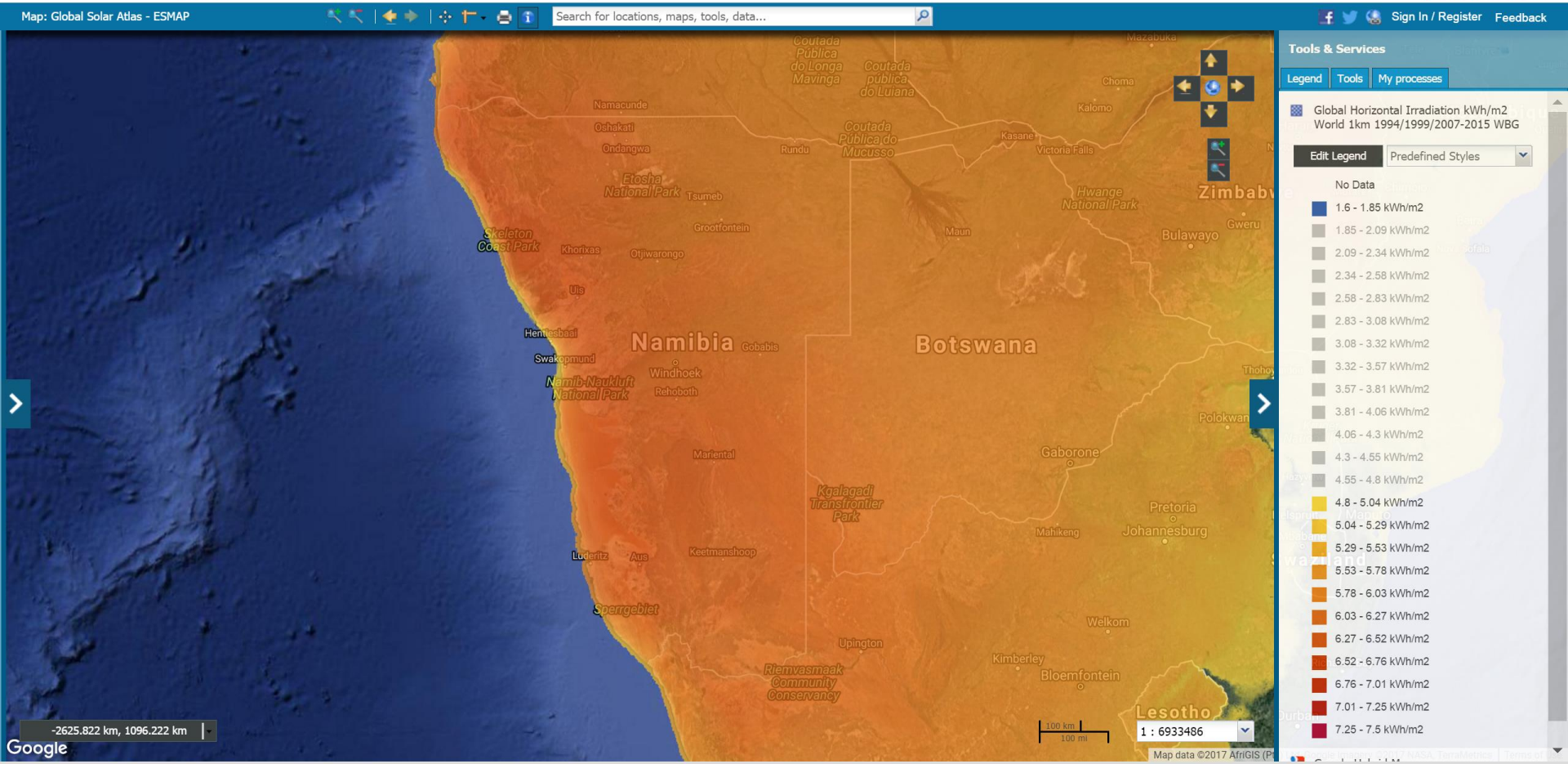
SOCIAL MEDIA ▾ TERMS OF USE HELP ▾



WindGuard GeoModel SOLAR REN21 SANDER PARTNER prognos DLR JRC EUROPEAN COMMISSION National Research Council of Italy cener NOVELTIS IRENA

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DTU – global wind map

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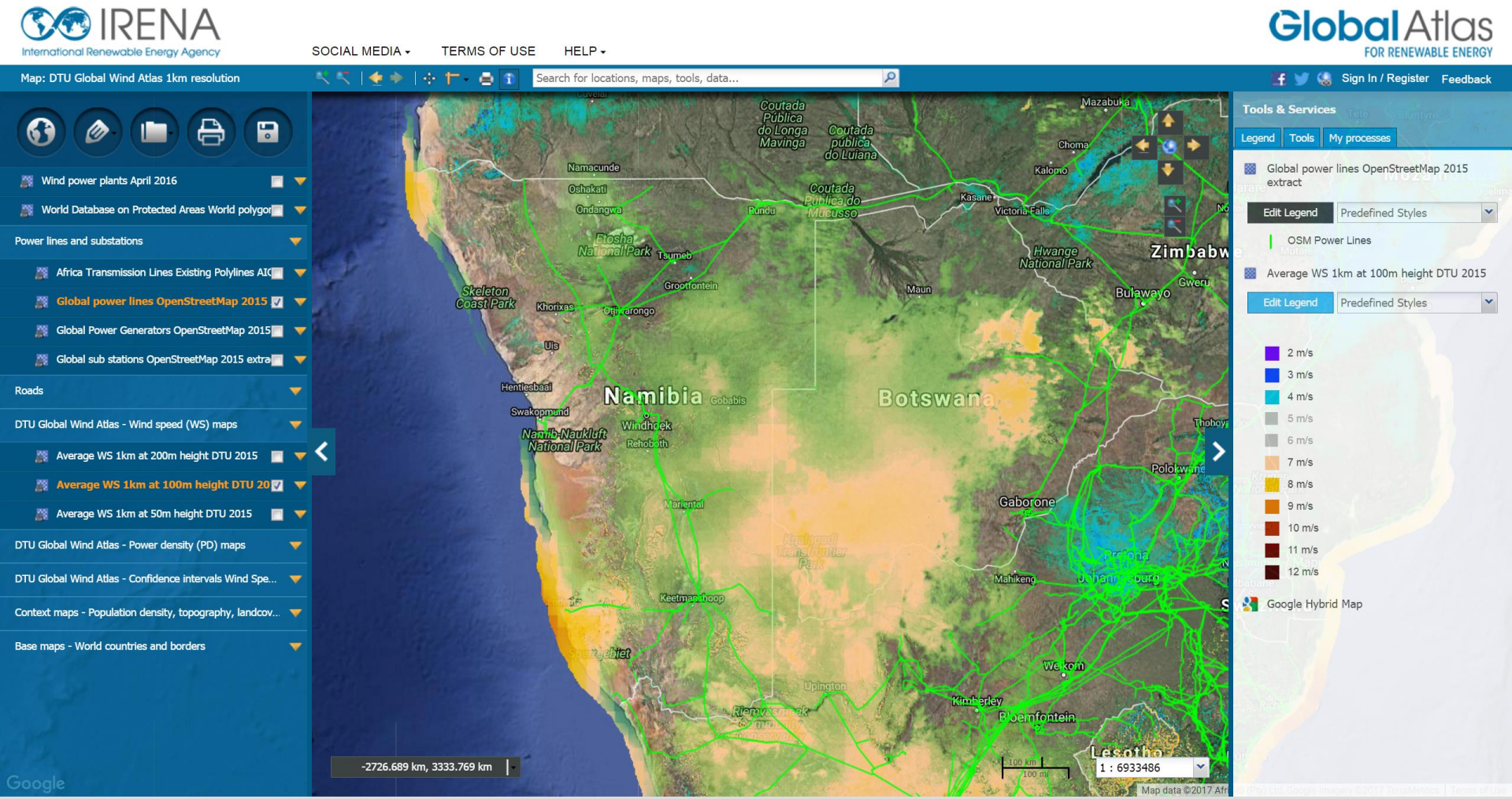

WindGuard · GeoModel SOLAR · REN21 · SANDER PARTNER · prognos · DLR · JRC EUROPEAN COMMISSION · National Research Council of Italy · cener · NOVELTIS · IRENA

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DTU Technical University of Denmark

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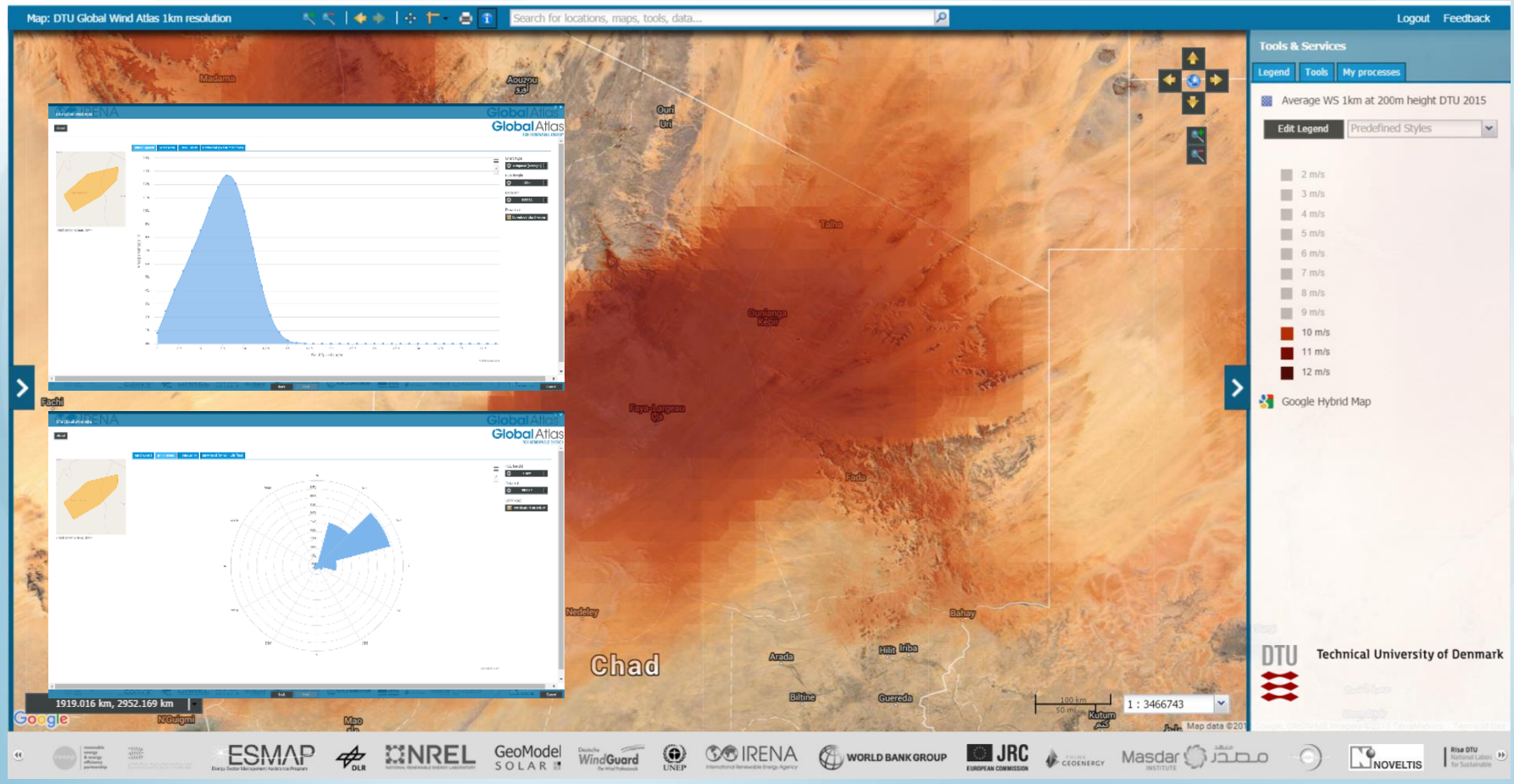
Advanced wind analysis tools



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Which Map Should I Use?

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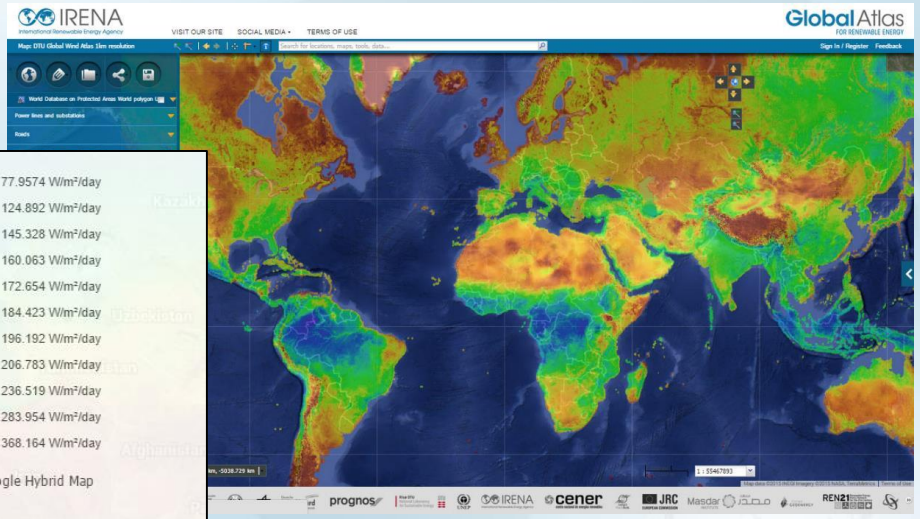
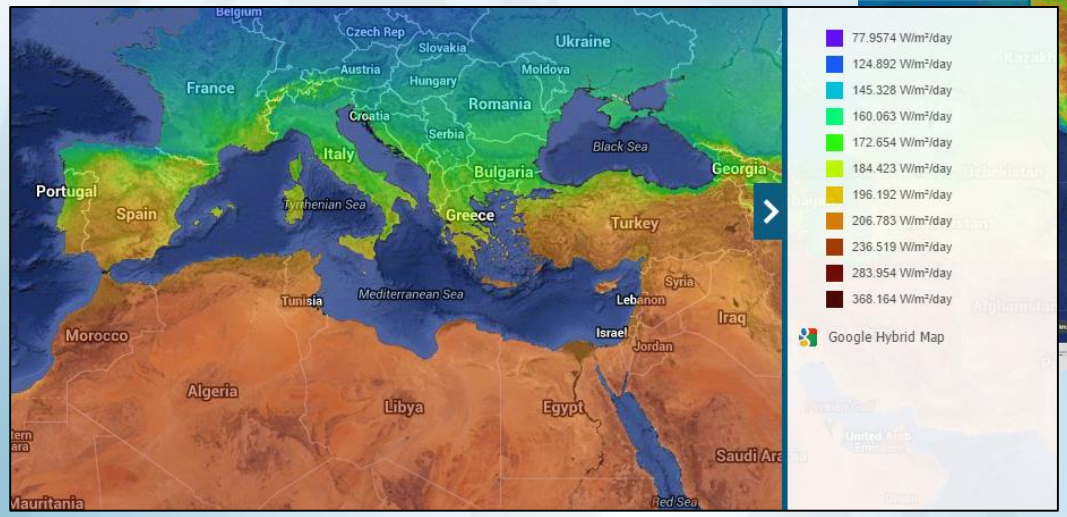
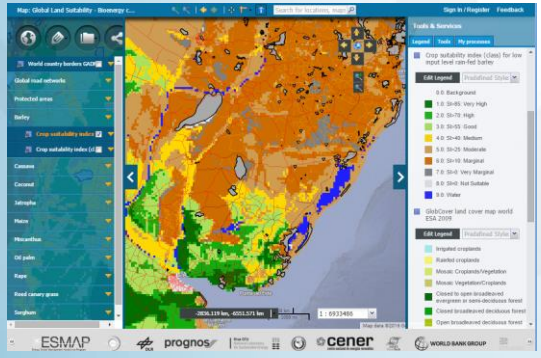
Global Technology Maps

Global Wind Atlas

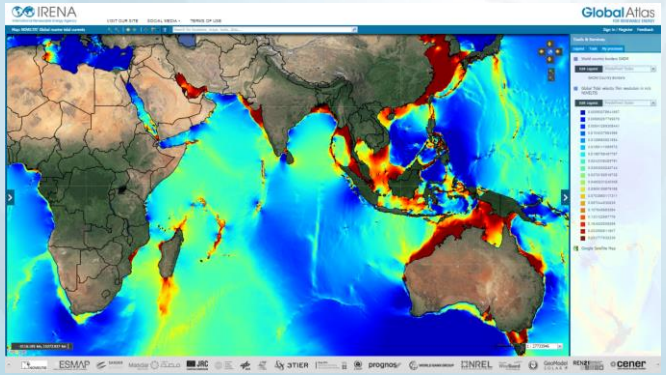




3TIER/Vaisala Solar Map



Bioenergy



Tidal currents

Which Map Should I Use?

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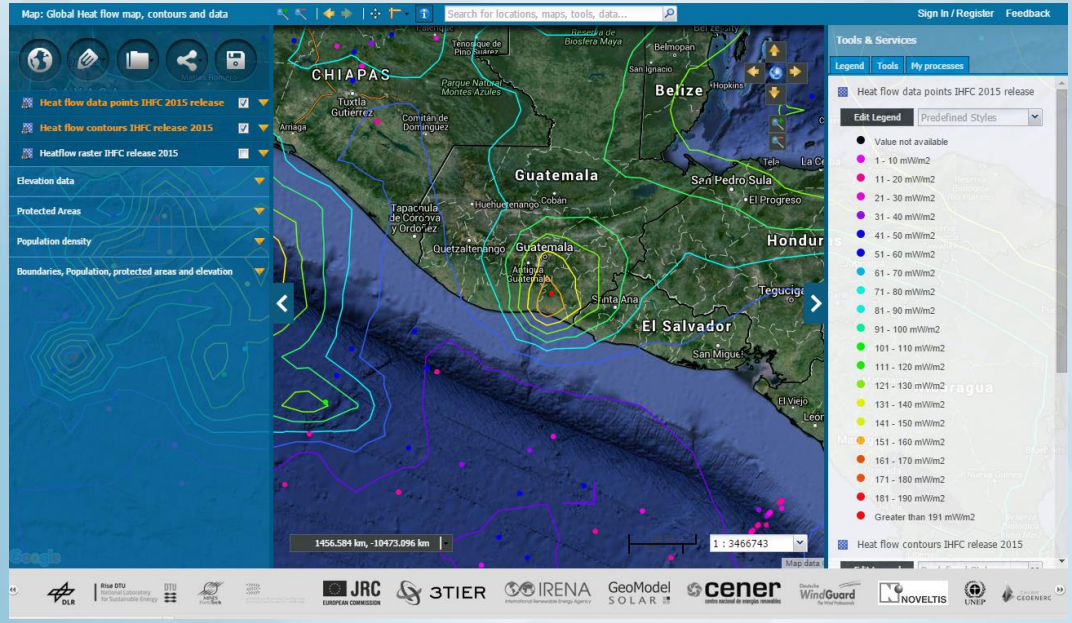
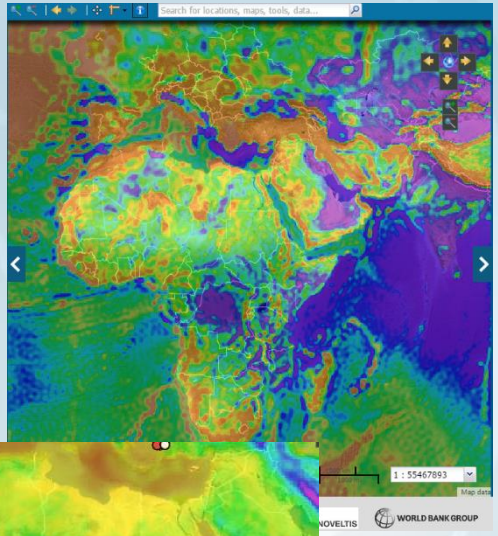
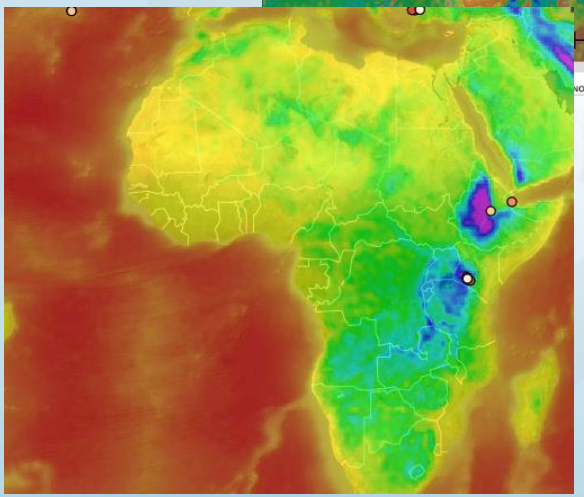
Geothermal Maps



Heat Flow data

Gravity Disturbance





Bouguer Anomaly

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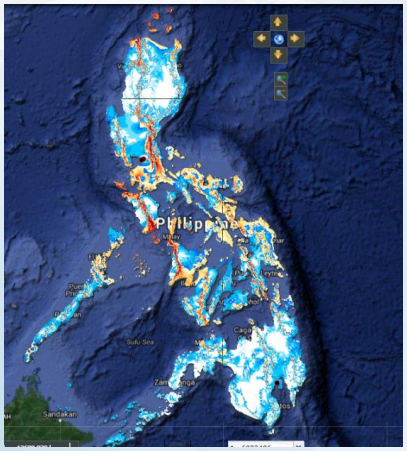
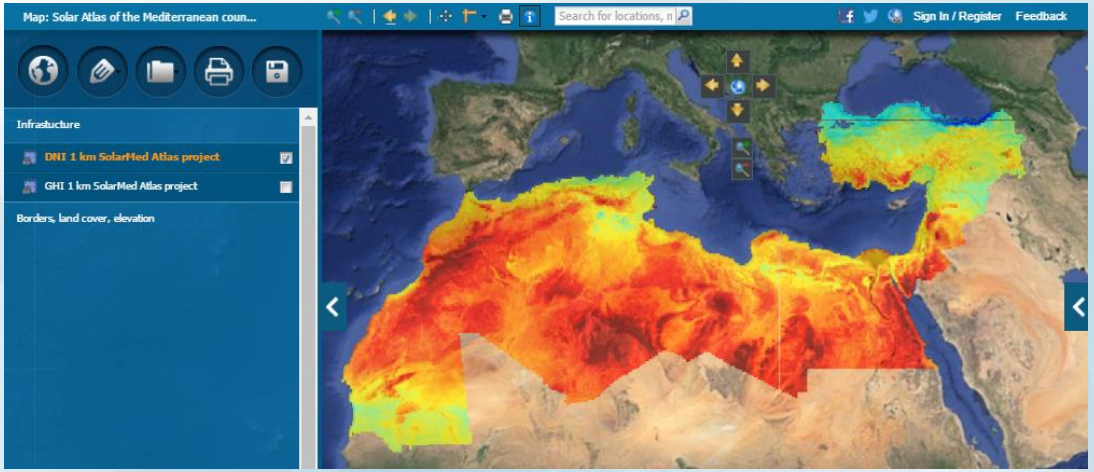
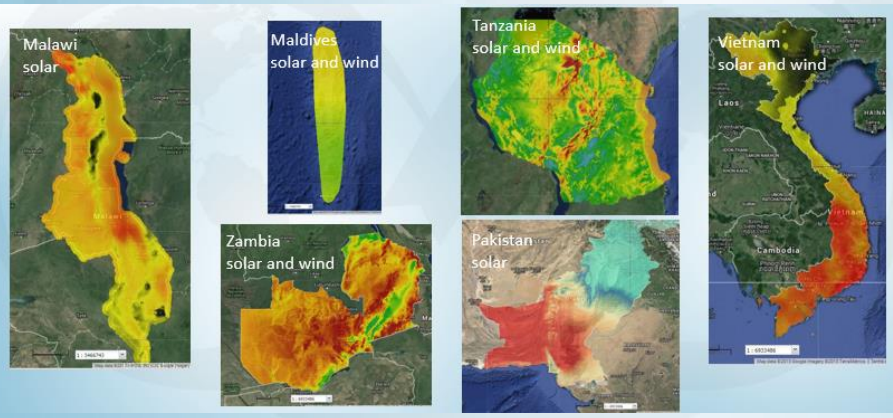
Regional and Country Maps



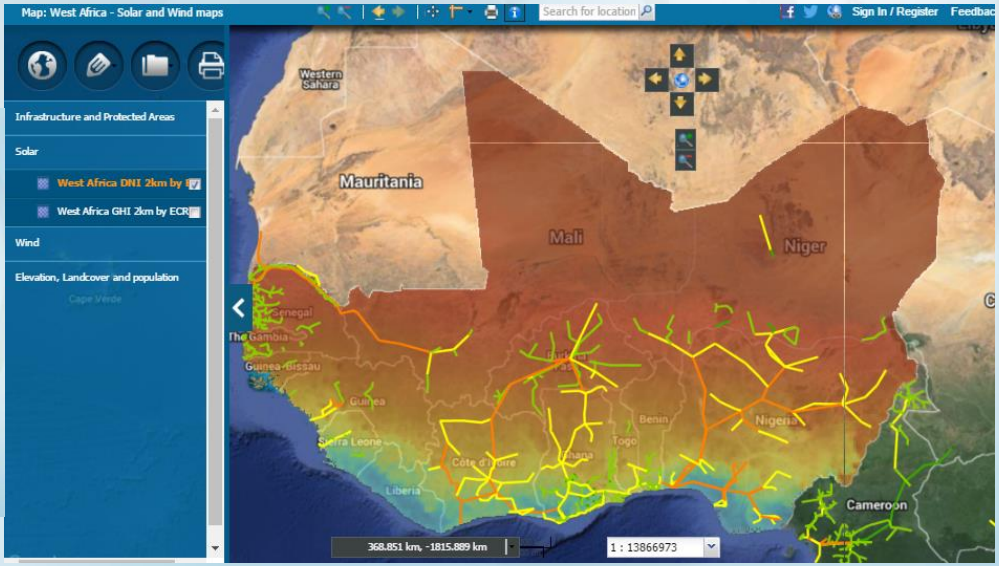
Wind map of the Phillipines



Solar Med Atlas – Middle East and North Africa



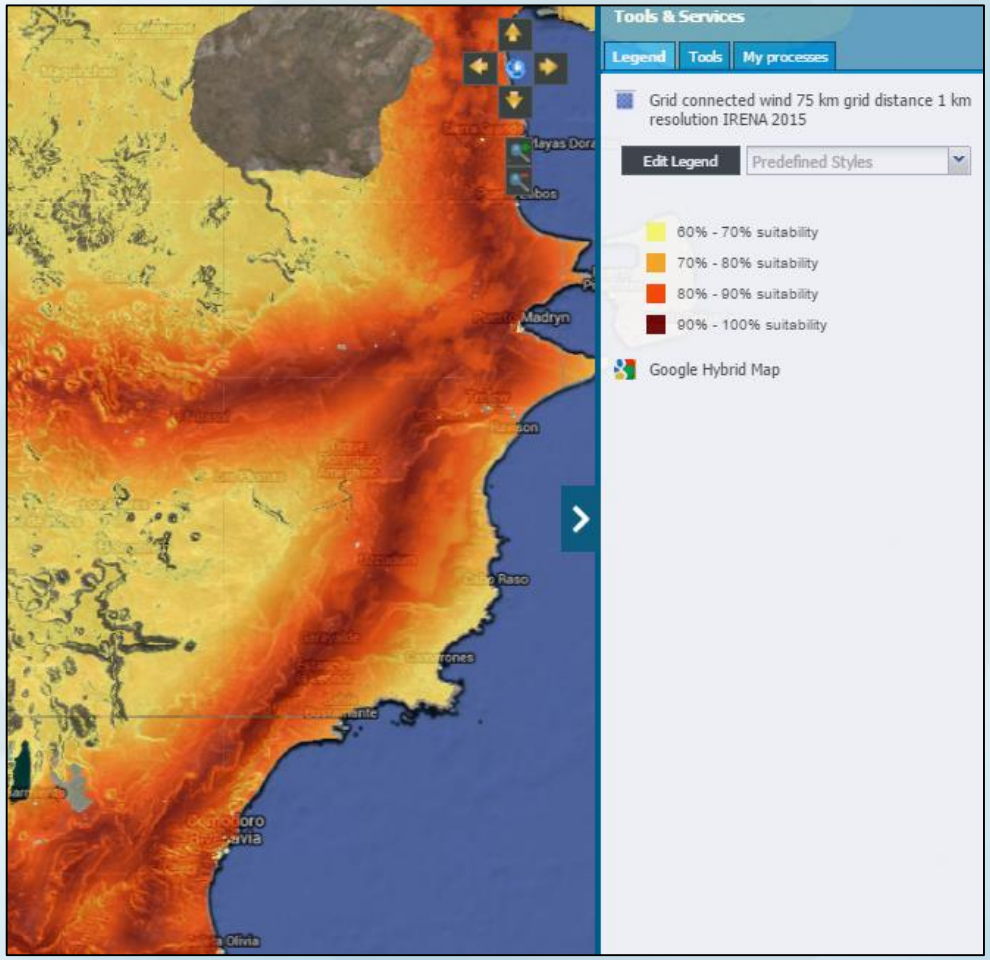
ESMAP Country Maps



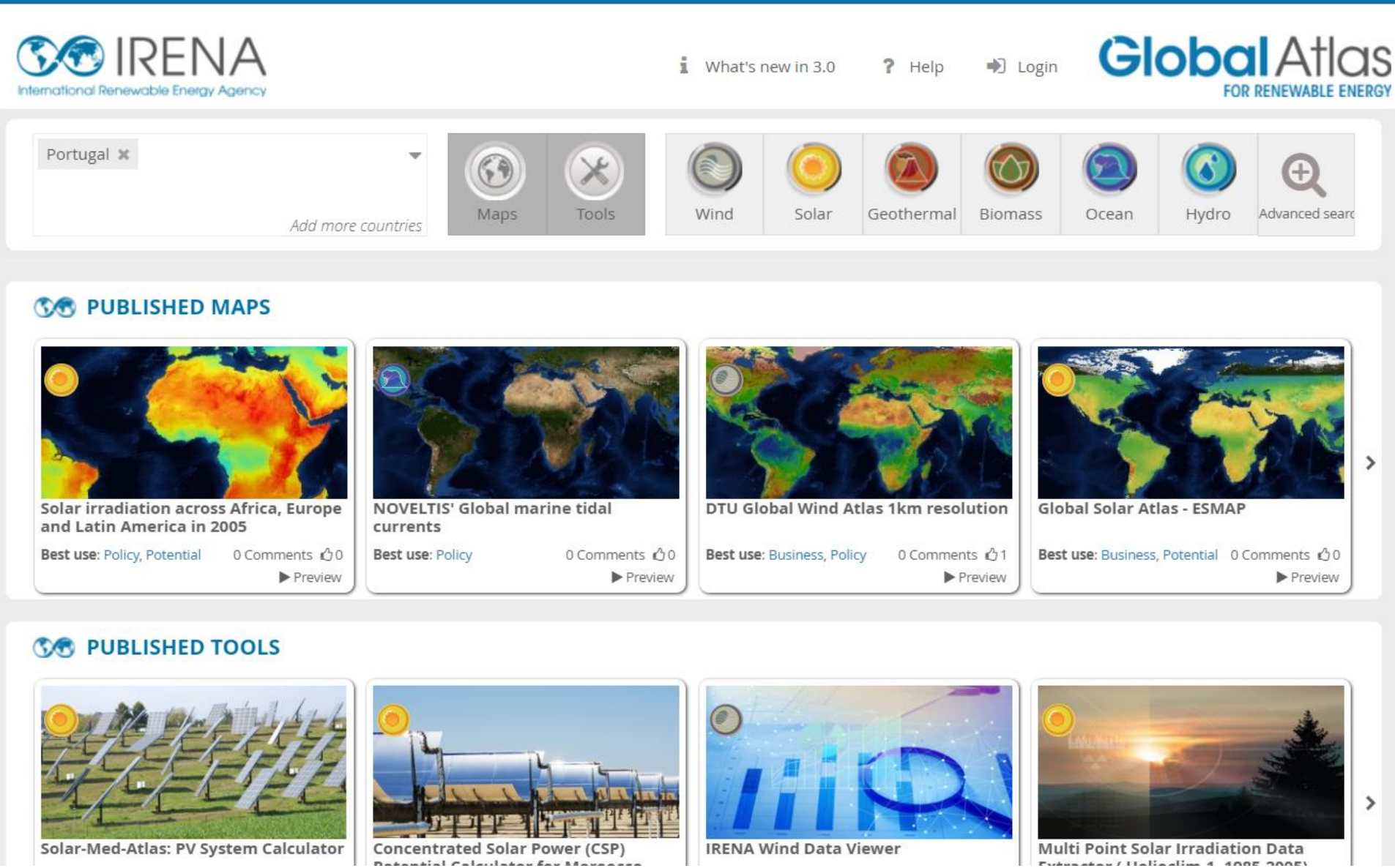
West Africa Solar and Wind

Suitability Studies

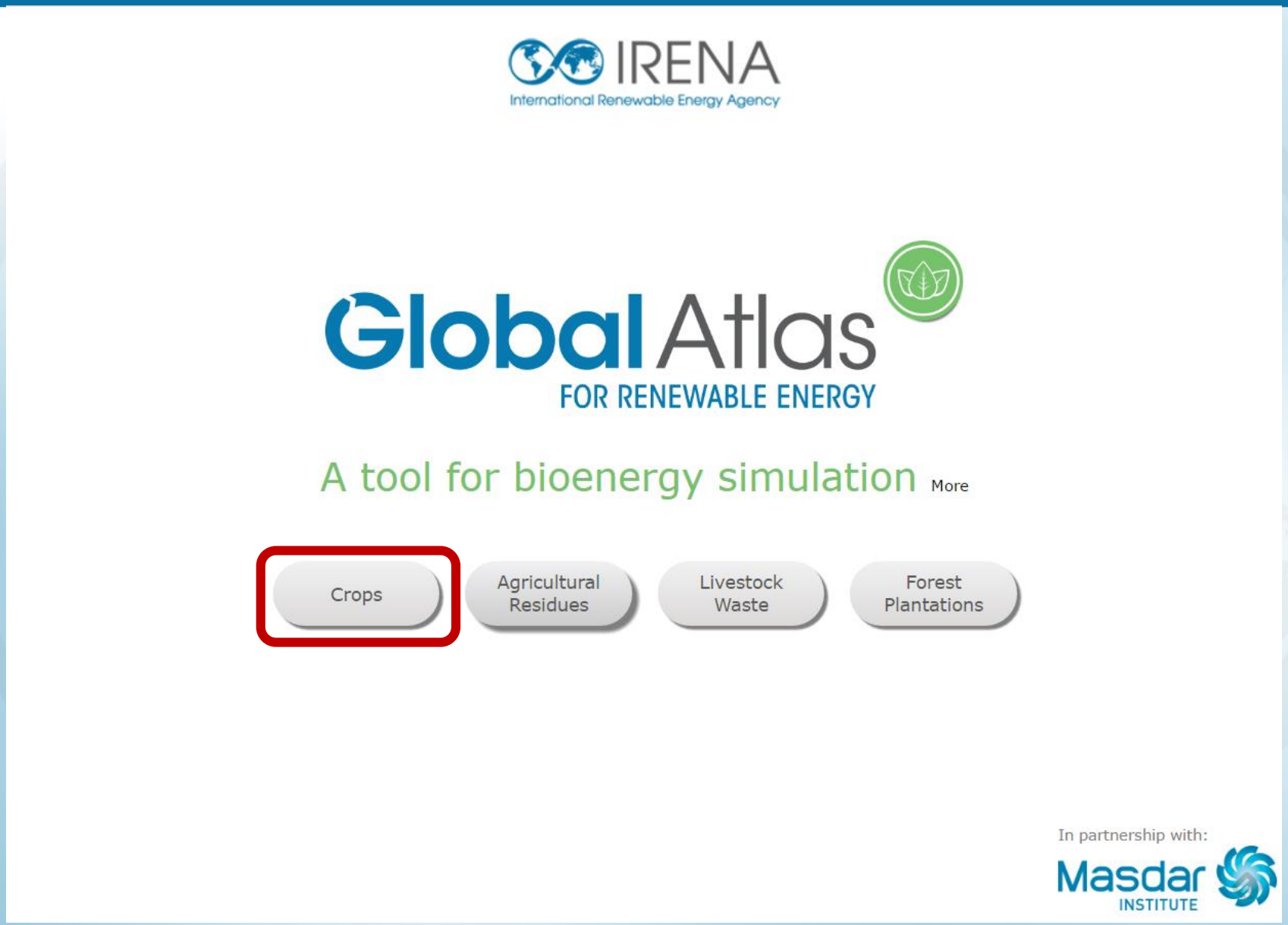
- Pre-packaged analysis for high-level users
- Each square km is scored based on:
  - Resource strength
  - Grid distance
  - Population density
  - Topography
  - Land cover
  - Protected Areas
- Three regions completed to date
  - Latin America
    - Investment Opportunities report
    - Map # 2012
  - GCC
    - Investment Opportunities report
    - Map #2146
  - Southeast Europe
    - Map #2411



Global Atlas 3.0 – New map gallery



Bioenergy Simulator



Bioenergy Simulator

Bioenergy Simulator

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Define the Area 1 | Define the Process 2 | See Results 3

Global Atlas FOR RENEWABLE ENERGY

CROP DATA

Selected Area (ha)

10

Crop

Sunflower

Harvested product *(Please select a crop from above)*

Seed

Average crop yield (t/ha)

Select a value: Default - Rain-fed cor

☐	High inputs	1.4
☑	Intermediat...	0.9
☐	Low inputs	0.4

Moisture content (%)

Default: ☑ 0

Oil content (%)

Default: ☑ 44

The selected area does not contain any Protected or Water Stress areas

Information

The selected area contains

- Maximum value of population density of 127 people per km^2

(LandScan 2014 Global Population Database - Oak Ridge National Laboratory)

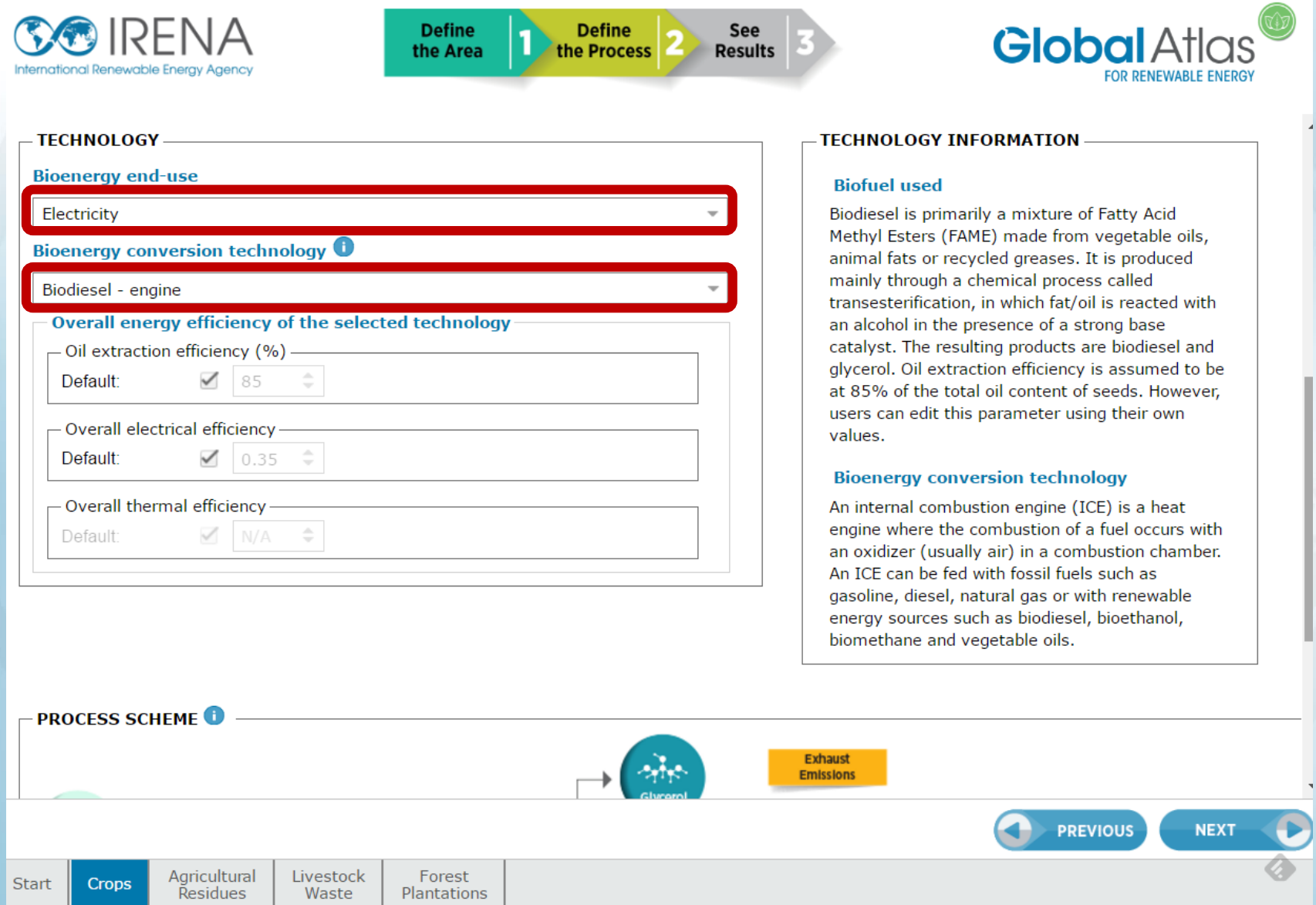
TECHNOLOGY

TECHNOLOGY INFORMATION

PREVIOUS NEXT

Start | Crops | Agricultural Residues | Livestock Waste | Forest Plantations

Bioenergy Simulator



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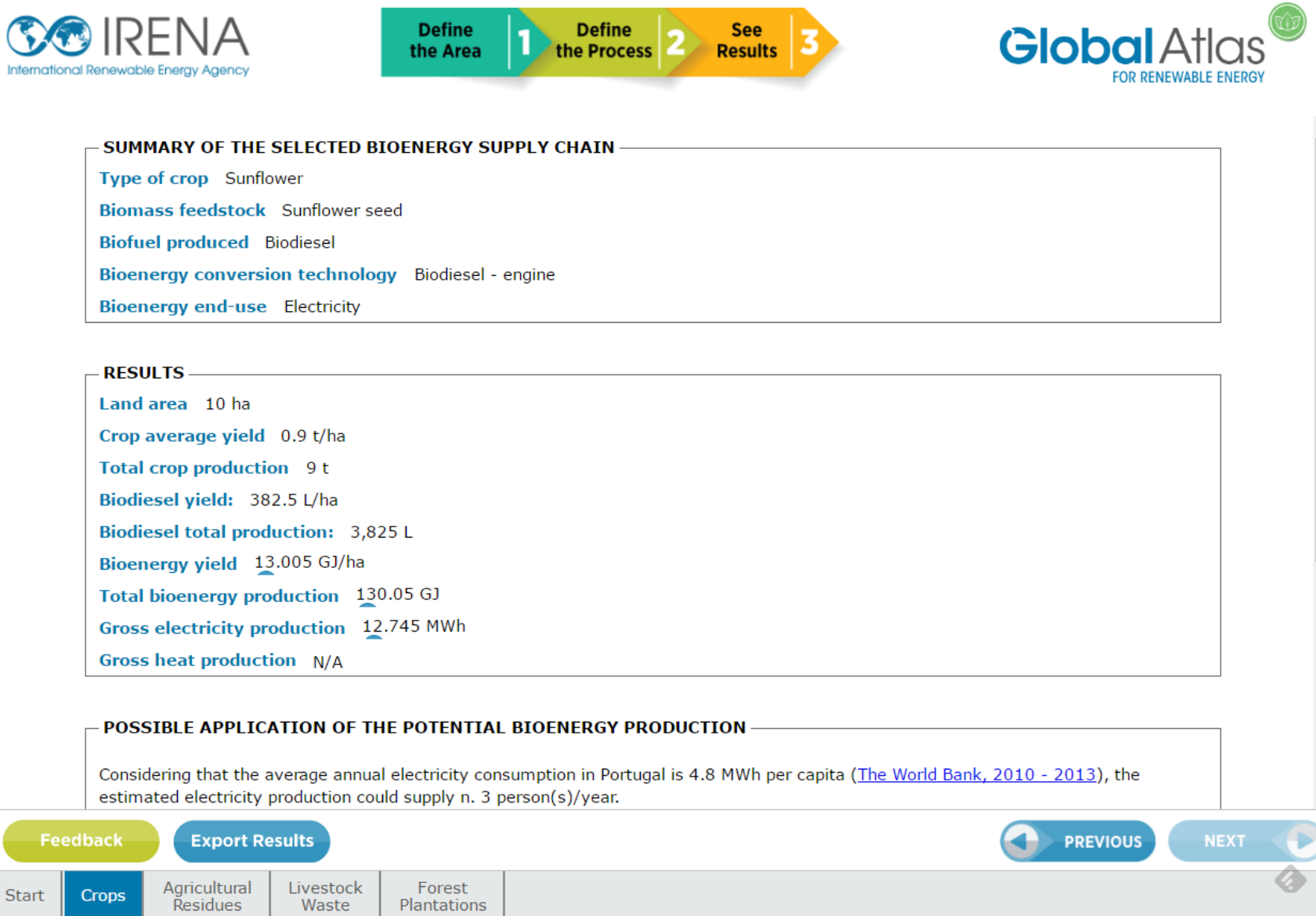
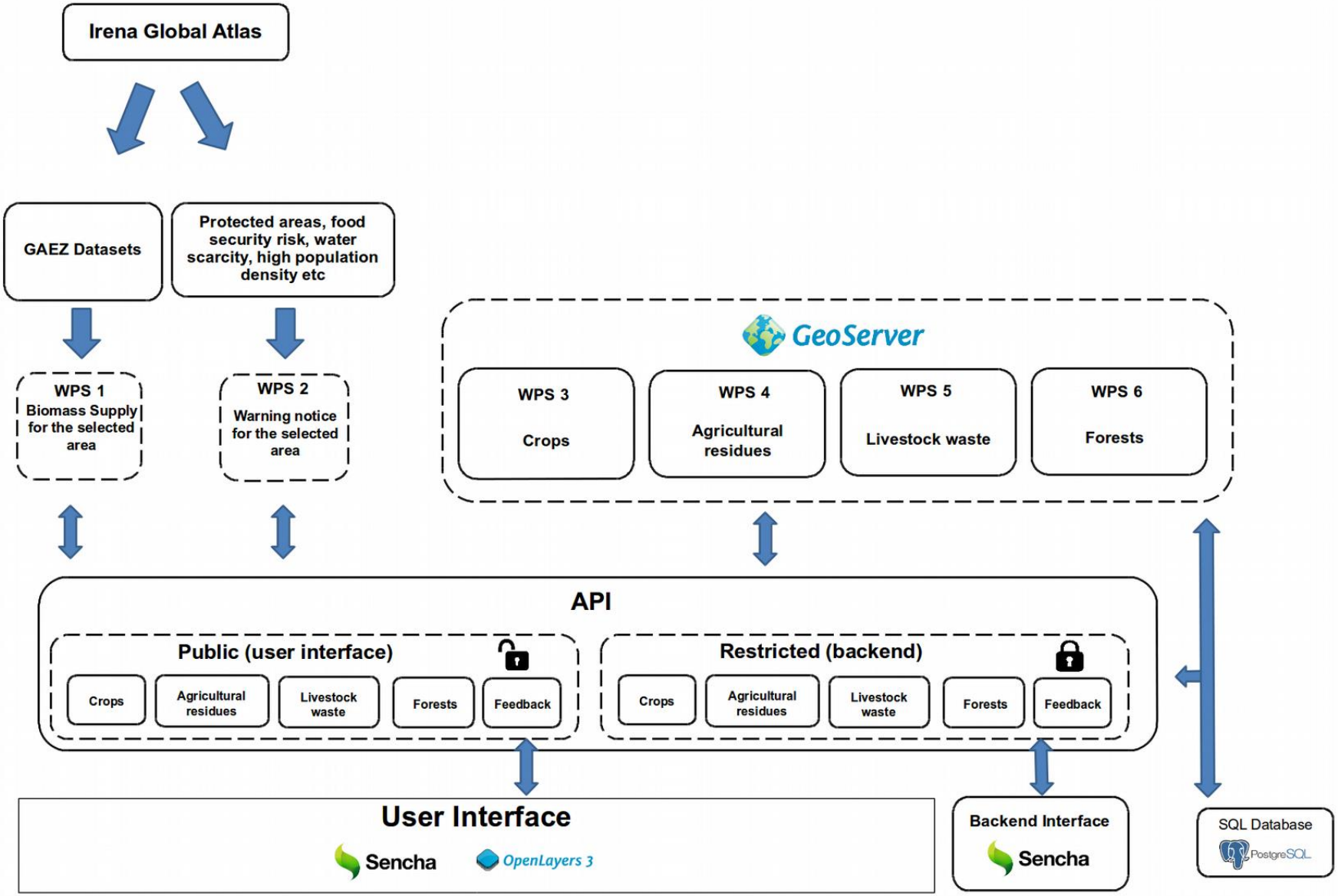


Bioenergy Simulator - architecture



Global Atlas Mobile App!

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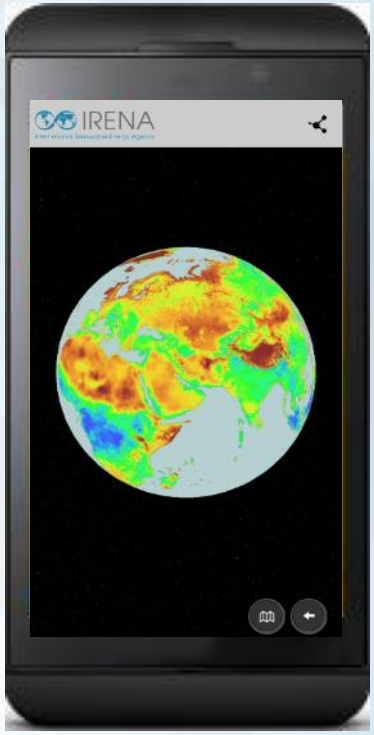

GlobalAtlas *pocket*
Mobile App

Available on the App Store

ANDROID APP ON Google play

Available on Blackberry and other Smartphones

Global Atlas Mobile App!

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Thank you

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