Energy related data, studies & tools of the JRC for electrification projects

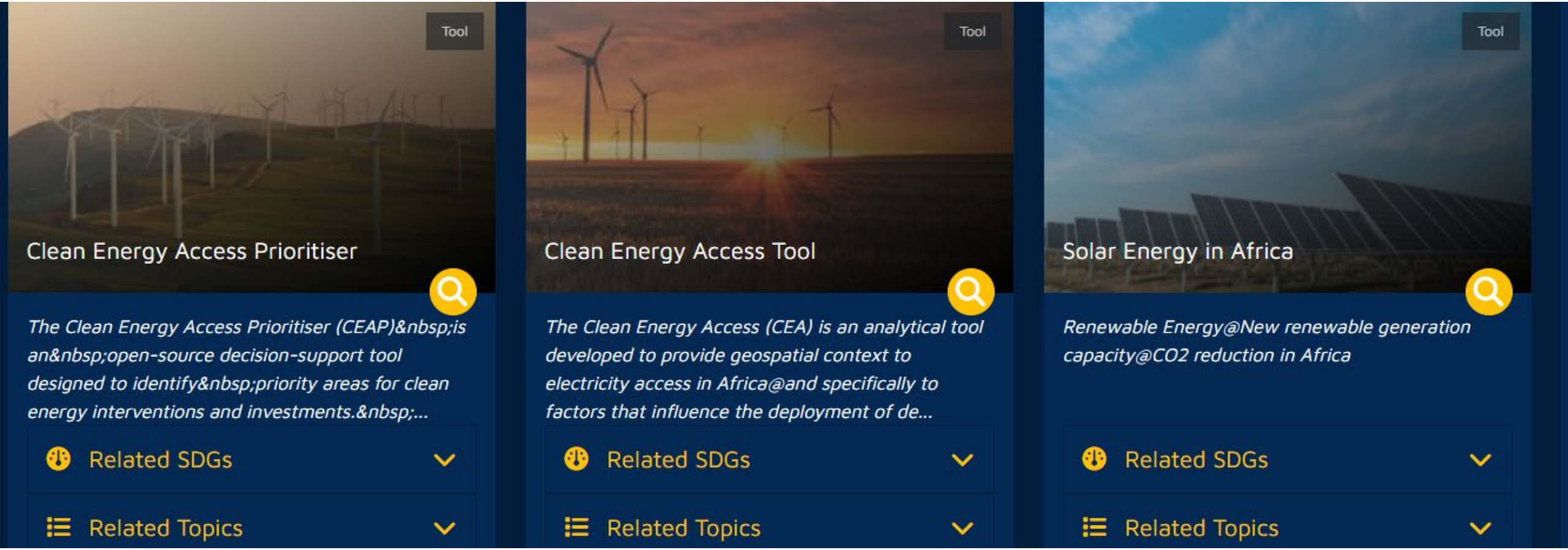
Szabo S.,.

European Commission, Joint Research Centre, Ispra, Italy

CSIR RD20 Conference, South Africa, 20th October 2026

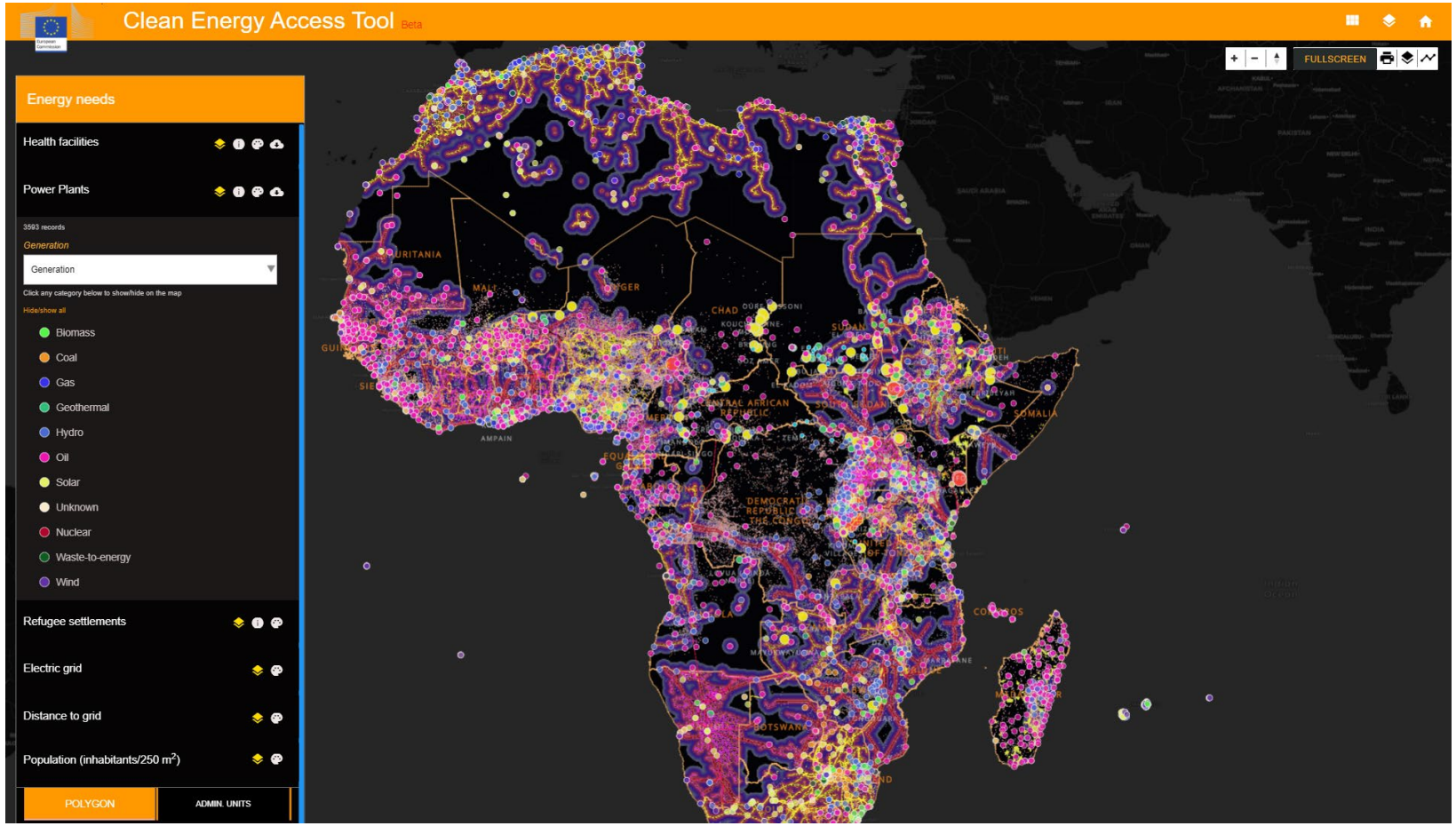
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JRC Africa Knowledge Platform energy tools



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Background and Purpose



Why was the tool developed?

- Support DG INTPA of European Commission and other international organizations to plan energy access interventions (mainly social infrastructure)

When was developed?

- The tool builds on a long research area (since 2010) of techno-economic modelling for energy access in Sub-Saharan Africa
- Released in 2022 with the Official launch of the Africa Knowledge Platform

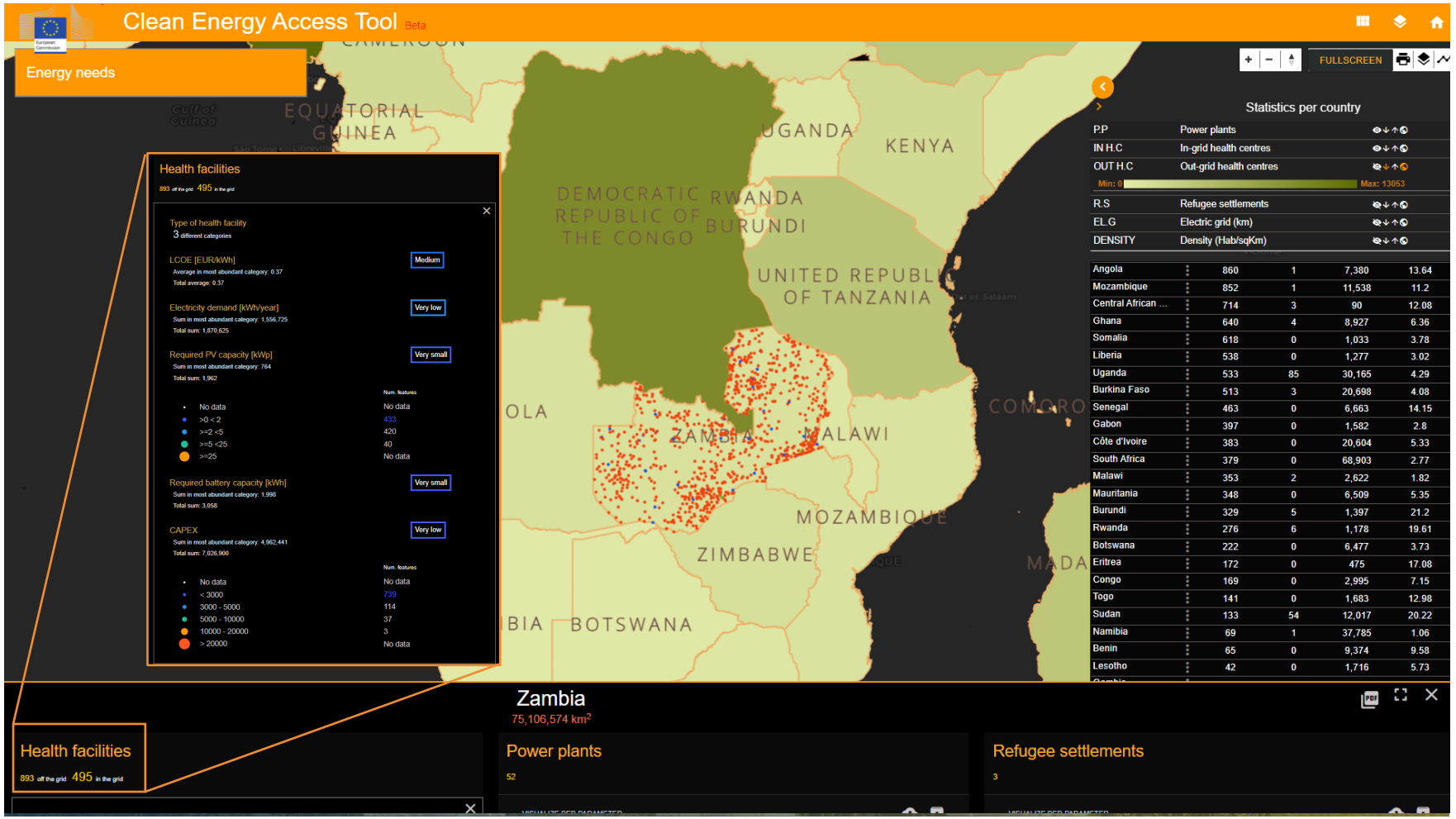
Who was involved in its development?

- JRC Researchers
- Experts from DG INTPA
- EU delegations in Africa

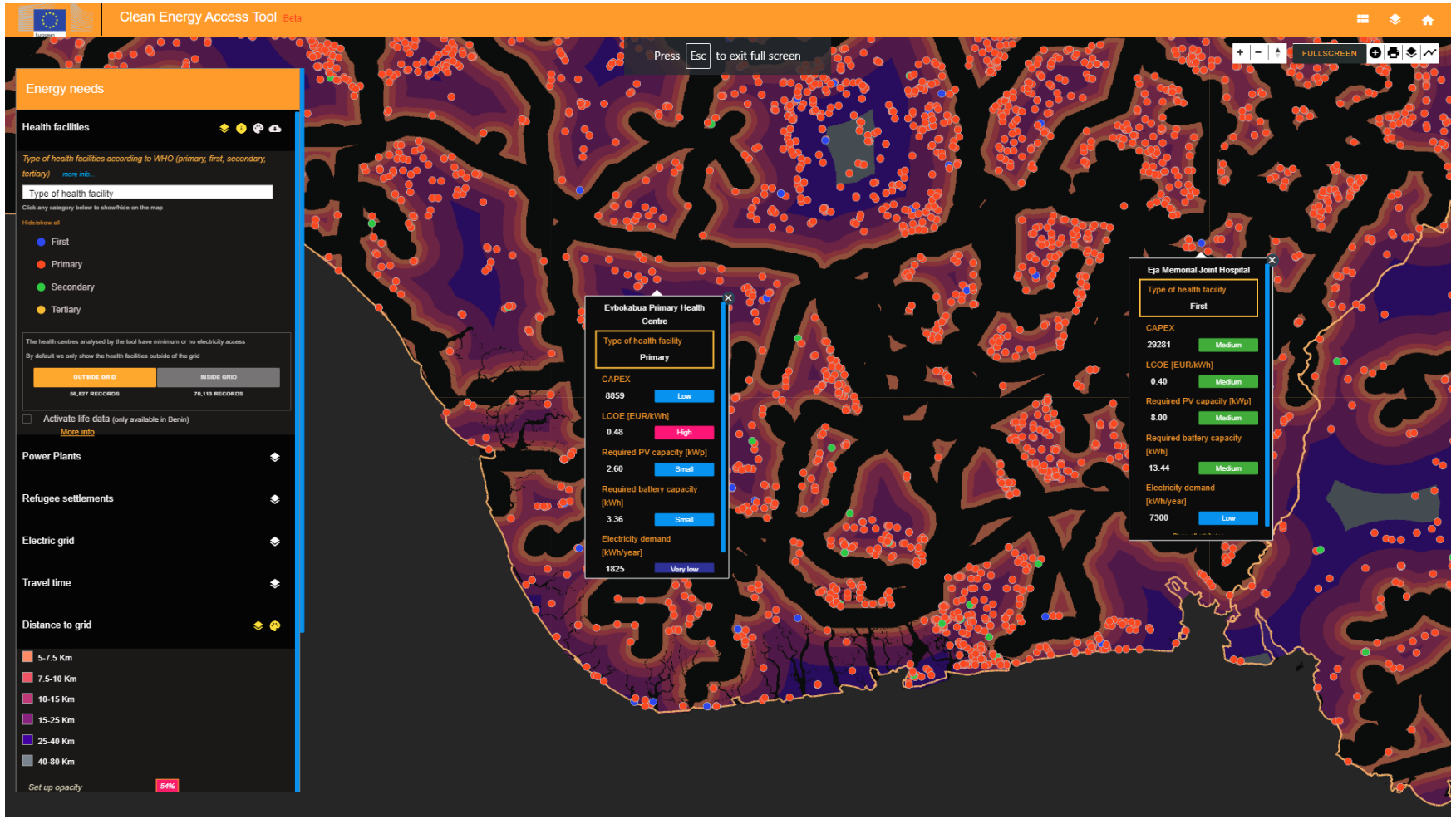
- Coverage: Sub-Saharan Africa
- Open access: Data available for download
- Backed by research published in high impact journals

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On-the-fly analysis at regional and national level



Health and Energy Nexus

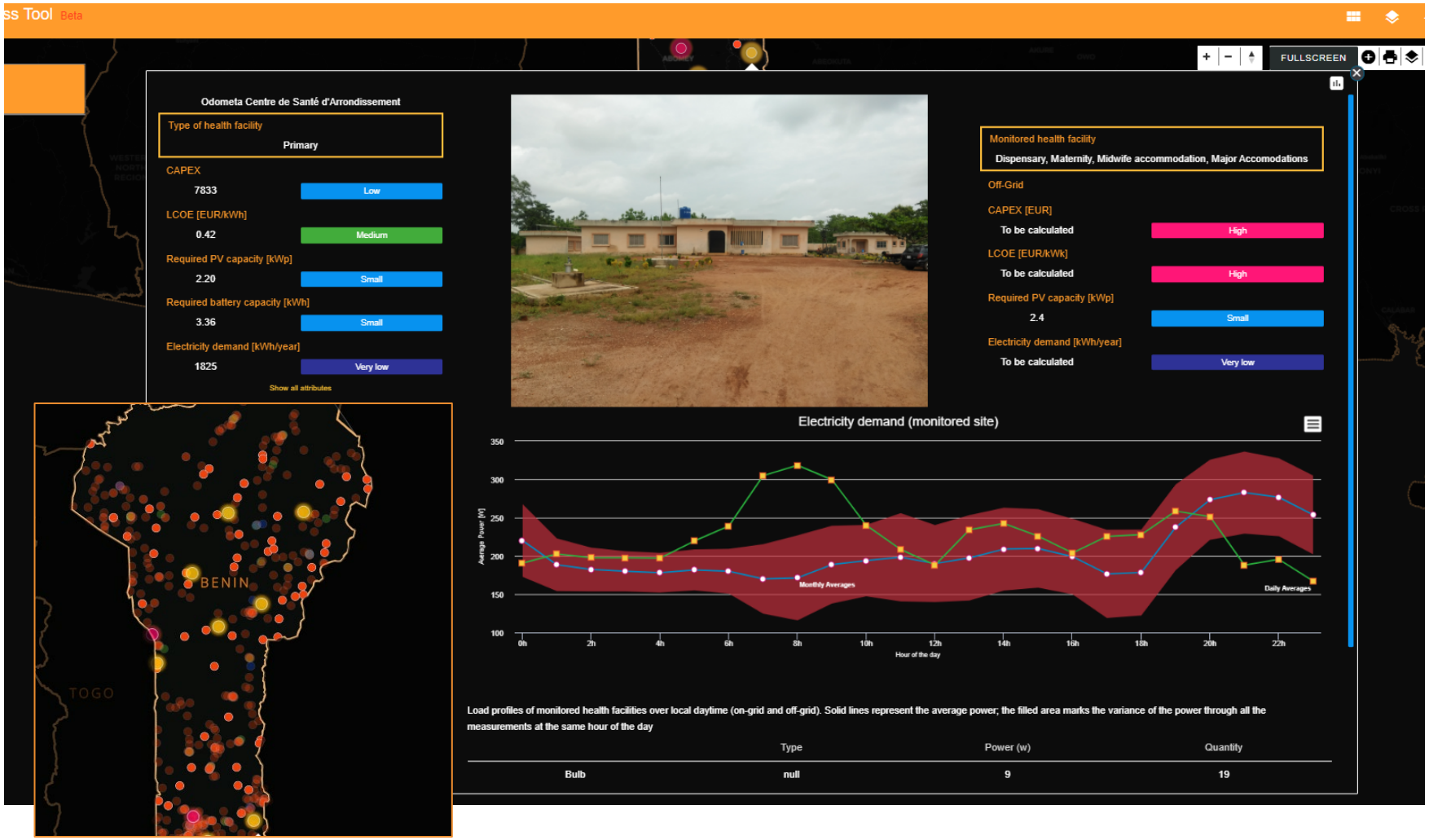


Analysis covers:

- Unified access to 30+ layers
- Mapping of 100,000+ health centres;
- Estimation of energy needs and electrification costs;
- Analysis on users defined areas or administrative units
- Remote monitoring of health facilities

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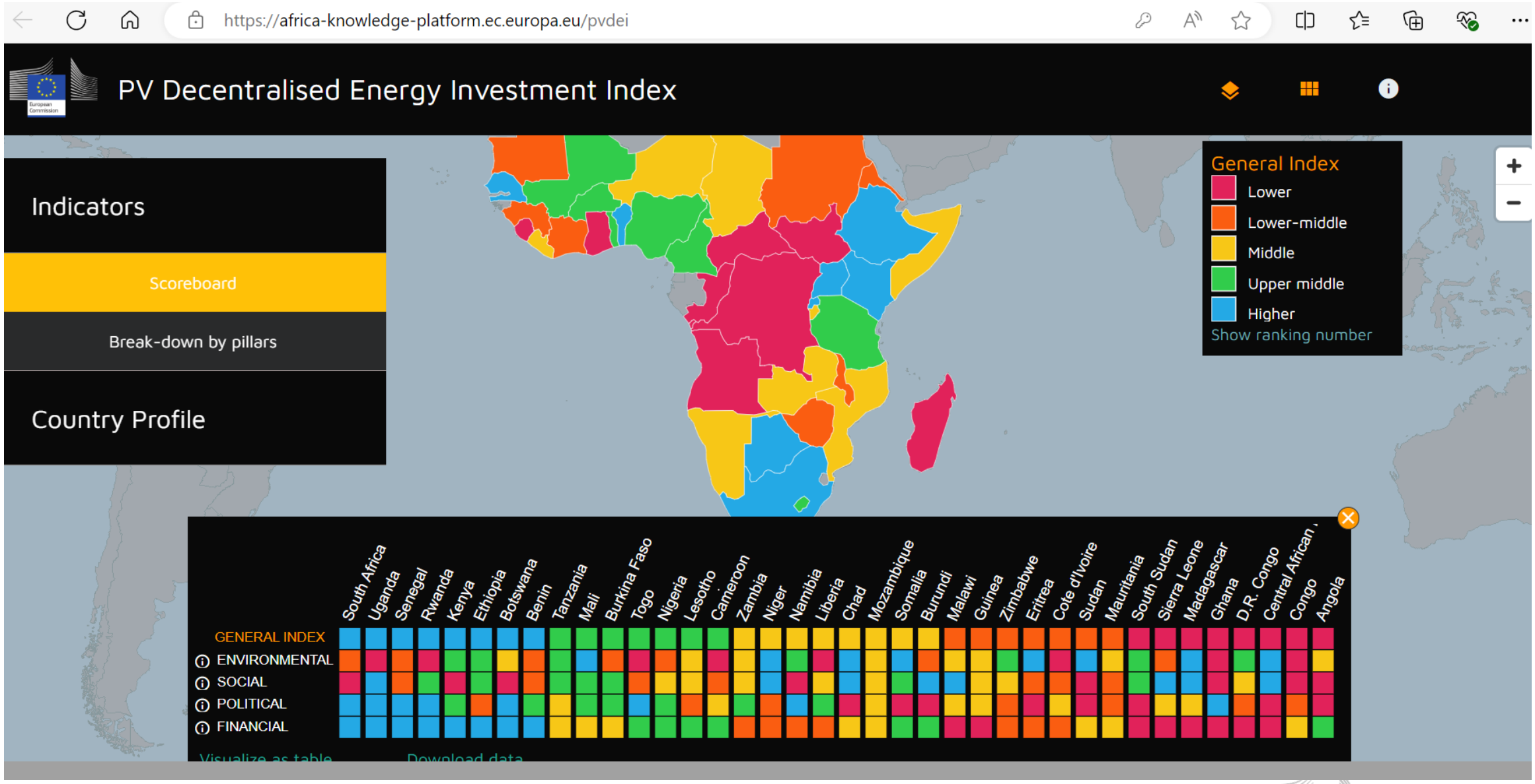
Monitoring electricity consumption, power quality and reliability



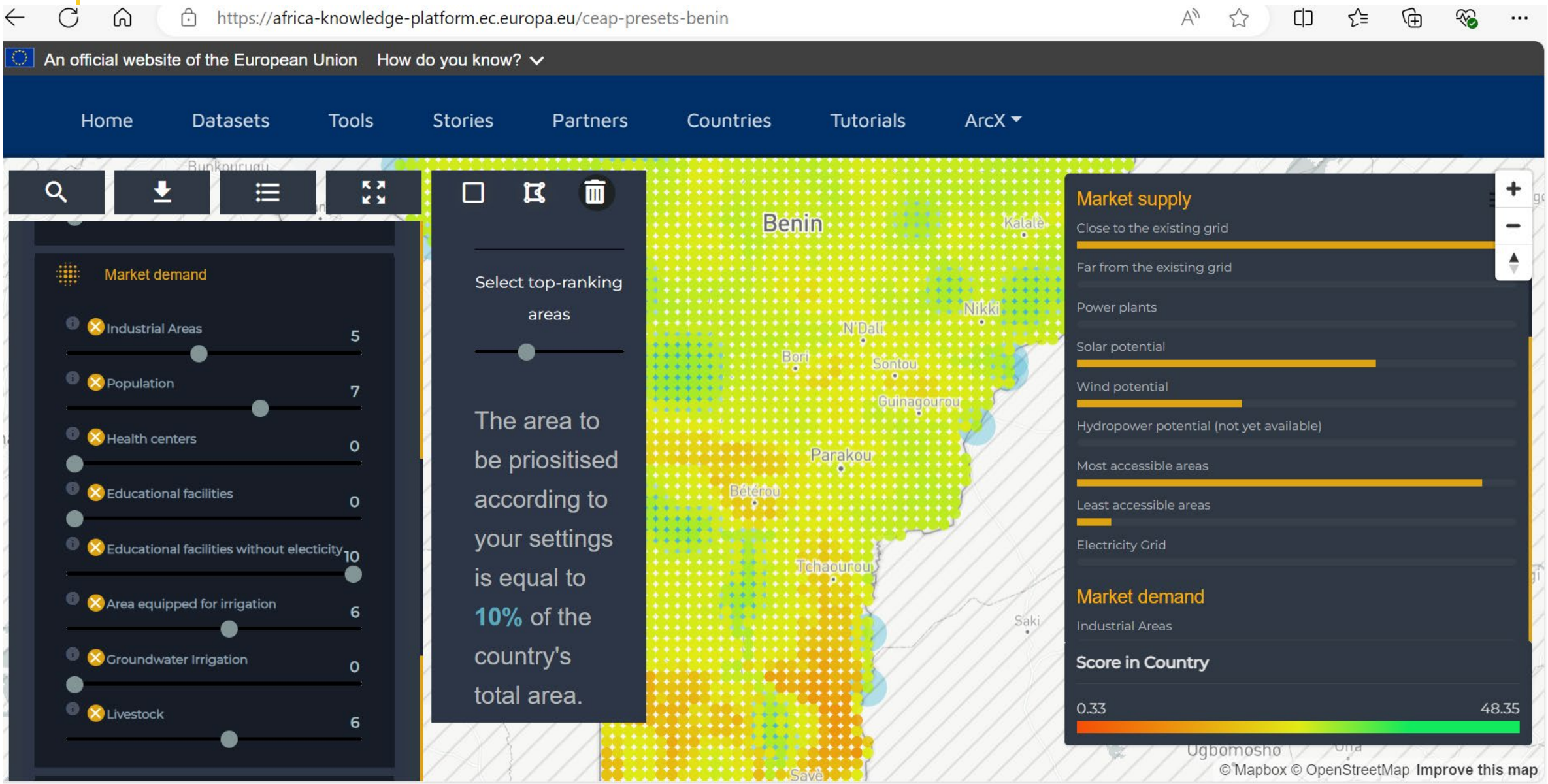
Remote monitoring of 17 health centres in Benin
Collaboration with EUD, Benin Health and Energy Ministries, A2EI, GIZ

Prospect

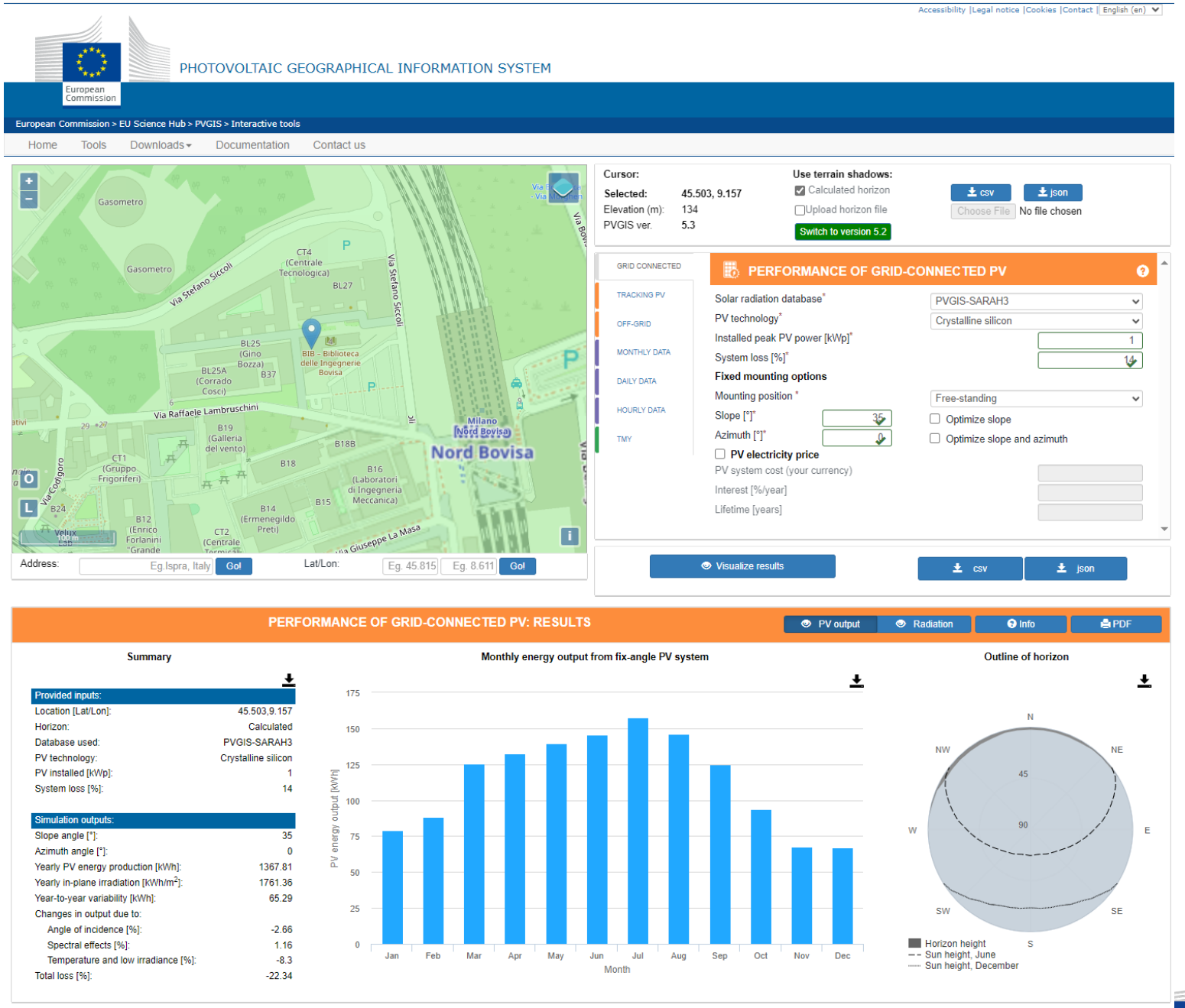
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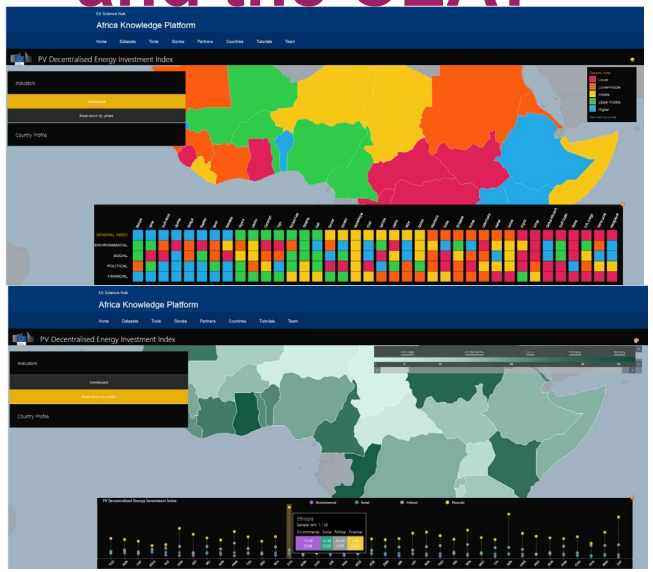

https://africa-knowledge-platform.ec.europa.eu/ceap-presets-benin
An official website of the European Union
How do you know?
Home
Datasets
Tools
Stories
Partners
Countries
Tutorials
ArcX
Market demand
Industrial Areas 5
Population 7
Health centers 0
Educational facilities 0
Educational facilities without electicity 10
Area equipped for irrigation 6
Groundwater Irrigation 0
Livestock 6
Select top-ranking areas
The area to be priositised according to your settings is equal to 10% of the country's total area.
Benin
Kalalé
Nikki
N'Dali
Bori
Sontou
Guinagourou
Parakou
Bétérou
Tchaourou
Saki
Ugbomosho
Save
Market supply
Close to the existing grid
Far from the existing grid
Power plants
Solar potential
Wind potential
Hydropower potential (not yet available)
Most accessible areas
Least accessible areas
Electricity Grid
Market demand
Industrial Areas
Score in Country
0.33
48.35
© Mapbox © OpenStreetMap Improve this map

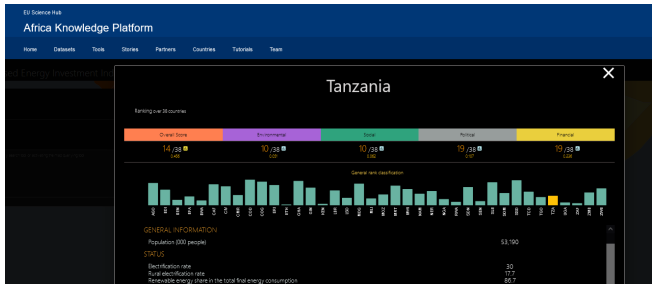
PVGIS present version and future plans and update



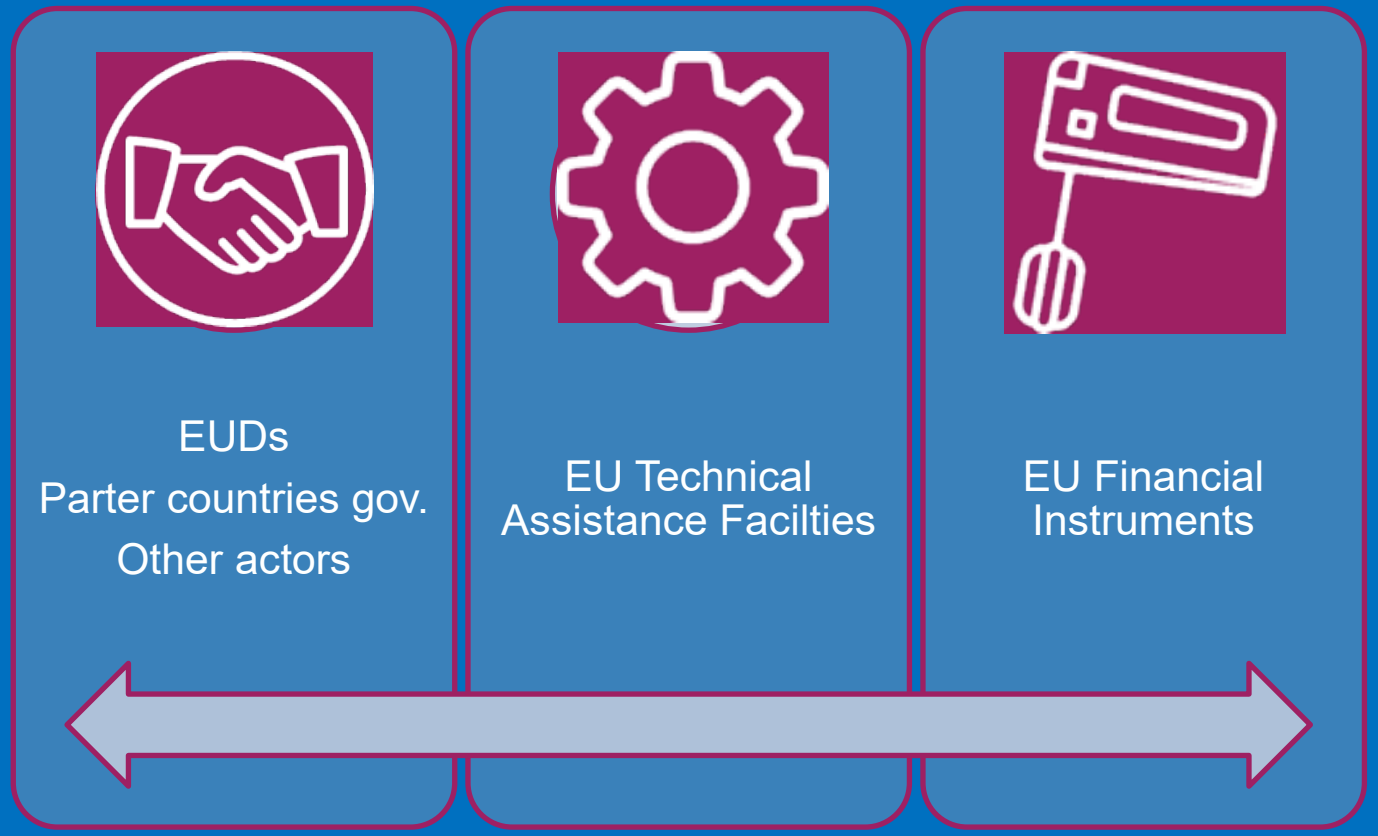
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Potential&past beneficiaries of the PV-DEI and the CEAT









Possible relevance for:

- CEAT was used for selecting priority health facilities in Nigeria public procurement
- **EUDs**: Improved multi-criteria decission making processes (better programming, targeting, design interventions, etc)
- **TAF:** Improved reporting, visualization, provision of services, etc.
- **FINANCIAL INSTRUMENTS**: Improved market intelligence to inform and guide investments simultaneously considering various factors

Published papers

- S Szabó, K Bódis, T Huld and M Moner-Girona: Energy solutions in rural Africa: mapping electrification costs of distributed solar and diesel generation versus grid extension Env Res Letters vol 6 3
- M. Moner-Girona M. Solano-Peralta M. Lazopoulou E.K. Ackom X. Vallve S. Szabó Electrification of Sub-Saharan Africa through PV/hybrid mini-grids: Reducing the gap between current business models and on-site experience RSER vol 91
- M Moner-Girona, F Fahl, G Kakoulaki, DH Kim, I Maduako, S Szabo, G Nhamo, BK Sovacool, Daniel J Weiss: Empowering quality education through sustainable and equitable electricity access in African schools Joule vol 9 2
- M. Moner-Girona et al, Achieving universal electrification of rural healthcare facilities in sub-Saharan Africa with decentralized renewable energy technologies. Joule, 5, 2687-2714
- S. Szabo et al, Mapping of affordability levels for photovoltaic-based electricity generation in the solar belt of sub-Saharan Africa, East Asia and South Asia, Nature Portfolio, Scientific Reports, 11:3226

Thank you

- JRC is open to cooperation and receiving PhD students and other researchers (as unpaid visiting scientists)
- JRC is constantly hiring new staff: https://recruitment.jrc.ec.europa.eu/
- Africa Knowledge Platform : https://africa-knowledge-platform.ec.europa.eu/
- Clean Energy Access Tool : https://africa-knowledge-platform.ec.europa.eu/energy_tool#!

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Slide 2: Solartrainer from Africa Greentec in Cinzana-Gare village, Mali, **Source**: @Torsten Schreiber –- https://commons.wikimedia.org/wiki/File:Solartainer_in_Cinzana-Gare_%28Segou-region%29_Mali.jpg

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- Christian.Thiel@ec.europa.eu

Clean Energy Access Tool

- https://africa-knowledge-platform.ec.europa.eu/energy_tool#!

PVDEI tool

https://africa-knowledge-platform.ec.europa.eu/pvdei

PVGIS

PVGIS - Photovoltaic Geographical Information System

Africa Knowledge Platform

European Commission