IRENA
International Renewable Energy Agency

CLEAN ENERGY MINISTERIAL
Accelerating the Transition to Clean Energy Technologies

Participating Countries

Partners

CENER | NATIONAL RENEWABLE ENERGY CENTRE

DLR

DTU Wind Energy
Department of Wind Energy

GeoModel

JRC
EUROPEAN COMMISSION

MINES PARIS
ParisTech

Masdar INSTITUTE

NREL
National Renewable Energy Laboratory
Innovation for Our Energy Future

prognos

reeep
renewable energy & energy efficiency partnership

reegle
information gateway for renewable energy and energy efficiency

REN21
Renewable Energy Policy Network for the 21st Century

UNEP

Deutsche WindGuard
The Wind Professionals

Global Solar and Wind Atlas

Solar and Wind Potentials Interactive Platform

What is the Global Atlas initiative?

The Global Atlas initiative is the largest ever initiative undertaken to assess the renewable energy potentials on a global scale. The initiative will deliver preliminary results on wind and solar, and will progressively include other renewable energy resources.

The Internet-based platform is designed to raise awareness of technology opportunities, to limit the financial risk for countries willing to investigate their technical potentials further, and for companies willing to invest in a new market.

To this end, it provides high quality resource maps from leading technical institutes worldwide, and simplified models for evaluating the technical potentials. The dataset is enriched by more detailed national atlases that are validated against measurement campaigns.

The ambition for this platform is to become a repository for high quality renewable energy resource data and a catalyst to trigger planning, policy development and attract investors in emerging and new renewable energy markets.

The Global Atlas for Solar and Wind Energy

The Global Atlas for Solar and Wind Energy is a collaborative Internet-based Geographic Information System (GIS) for wind and solar resources that supports decision-making, particularly in areas where existing information is insufficient.

The Global Atlas is a multi-stakeholder initiative of the Clean Energy Ministerial's Multilateral Working Group on Solar and Wind Energy Technologies.

IRENA is its key implementing partner.

Twelve countries signed up to the 'Statement on the Global Renewable Energy Atlas' during the third Clean Energy Ministerial (London, 25-26 April 2012), indicating interest in contributing to the Global Atlas.

Why develop a Global Atlas of renewable energy potentials?

What share of a country's energy mix can be supplied by renewable energy? Where are the resources located? What is the most cost-effective combination of technologies? What volume of investment does this represent, and is there a market large enough to create a supply chain?

Assessing renewable energy resources is the first step in answering these questions, and eventually creating an enabling market environment for deploying renewable energy investments.

This first step requires large upfront investments in measurement campaigns, and a high level of technical knowledge. The IRENA Global Atlas initiative is developed in partnership with the Clean Energy Ministerial's Multilateral Working Group on Solar and Wind Energy Technologies. For countries willing to exploit their national resources, it creates an entry point into the investigation of renewable energy potentials, before initiating detailed national assessments and building human capacities.

How is the initiative organised?

The *Steering Committee* is the main governance body. It includes countries and organisations committed to contribute to the process in terms of data provision, and / or supply of expertise.

The *Information Group* is in charge of collecting the information and providing the data and methods for the implementation of the technical elements of the initiative. The information group is composed of the world's leading institutes and private organisations in the area of renewable potentials assessment, and contributes technically to the implementation.

The dialogue with the end-users is structured through a large network of committed institutions and Member States organised by IRENA. The *End-Users Network* is gathered through workshops and working meetings, with four major tasks: defining the end-user requirements for the system; gathering existing datasets and including them within the system; starting the reflexion for a densification of the measurement network; and developing capacity building activities with the *Information Group*.

IRENA acts as *Secretariat* for the overall initiative.

How is it financed?

IRENA is supporting the activities related to operating the Secretariat.

The contributions from the countries are provided in kind, mostly through the involvement of their national institutes. They dedicate man-power, expertise or access to datasets to the initiative.

Similarly, the contributions from the private sector are provided in kind.

How can I join?

COUNTRIES

The initiative builds on a strong political momentum, and countries' willingness to access and give access to their datasets and expertise. The partnership is open, and countries willing to contribute to the initiative in terms of data provision, and / or supply of expertise are invited to sign the non-binding Statement on the Global Renewable Energy Atlas. The process is initiated with IRENA.

DATA PROVIDERS

In practice, technical institutes are nominated for the information group by the participating countries. However, data providers who are willing to contribute independently can also be considered. Technical

institutes willing to contribute are welcome to contact potentials@irena.org to initiate the dialogue.

END-USERS

The end-users network is open to professionals active in the field of renewable energy. End-users who are willing to participate and would like to be kept informed about developments are welcome to contact potentials@irena.org.

What are the benefits?

COUNTRIES

- Join the largest initiative ever undertaken to assess the renewable energy potentials on a global scale,
- Share and promote the knowledge accumulated by your national institutes,
- Access the latest information and practices on resource assessment,
- Assist countries with high potential in harnessing their own resources,
- Contribute to the scaling up of renewable energy worldwide.

DATA PROVIDERS

- Share and promote the knowledge accumulated during years of learning experience,
- Join the largest consortium of specialists in resource assessment and evaluation of technical potentials,
- Participate in building the largest information base on renewable energy potentials.

END-USERS

- Contribute in shaping the initiative,
- Make sure the final product supports your needs,
- Be regularly informed on the developments of the initiative,
- Propose improvements and content.

How does it work?

The Global Atlas will be made available online. The system is totally decentralised, and connects to databases on different servers worldwide. The list of servers is not limited, which enables a large number of institutes and countries to contribute quality information to the overall platform. Data sources are connected based on standards developed by the Open Geospatial Consortium (OGC) and the Global Earth Observation System of Systems (GEOSS). The data remains property of the data holder, and no transfer of archive is necessary. The data can be maintained and updated easily on the providers' side. This technological choice enables the initiative to be open and inclusive.

Geospatial data interface

Data Services Catalog

Main access portal

Scope	Shared by	Scope
Spain, West Africa	CENER	Solar / Wind
India	CWET	Solar/Wind
Mediterranean region	DLR	Solar
Global wind data	DTU Wind	Wind
Africa SolarGIS	Geomodel	Solar
UAE and GCC	MASDAR Inst.	Solar, Wind
Africa, EU	Mines ParisTech	Solar
Global SWERA Archive	NREL, UNEP	Solar / Wind
Global NASA SSE	NREL	Solar
South Africa	SANERI, SAWA	Wind
Complementary datasets	Ren21, REEEP, PVGIS/EU JRC Geomodel, Public databases	Multiple
Future partnerships: UNDP-GEF, ADB, ESMAP, WMO, AFRETEP/EU JRC, additional country partners, private companies...		

Data provision services

The information is displayed by a global online interface. The interface will propose online tools for manipulating the data and computing technical potentials, performing preliminary screening of areas of interest and sharing best practices in the use of the data.

- The process builds on a strong collaborative process between the major technical institutes in the field and the countries.

- The system architecture enables additional countries to give access to their data with only limited costs.
- Any additional data provided by the countries will help improve the accuracy in those areas.
- The system will help identify gaps in countries where technical assistance for local measurement campaigns and capacity building activities are needed.
- As the data will be updated and maintained by external entities, the system will provide updated data without significant maintenance costs.

What is the timeline?

The first platform will be operational in January 2013. It will provide the following set of initial features:

- Display of existing datasets located on different servers worldwide, and sorting of the information depending on the geographic coverage, precision and quality,
- Isolation of the areas with higher solar or best wind resource,
- Highlighting of the best locations, based on a dynamic ranking of the distance to main population centres, distance to electricity network (if available), protected areas and land use, land cover, hill patterns and terrain elevation,
- Calculation of technical potentials using simplified models, and a separate page linking to more advanced analysis tools,
- Links to country profiles,
- Possibility to generate online reports.

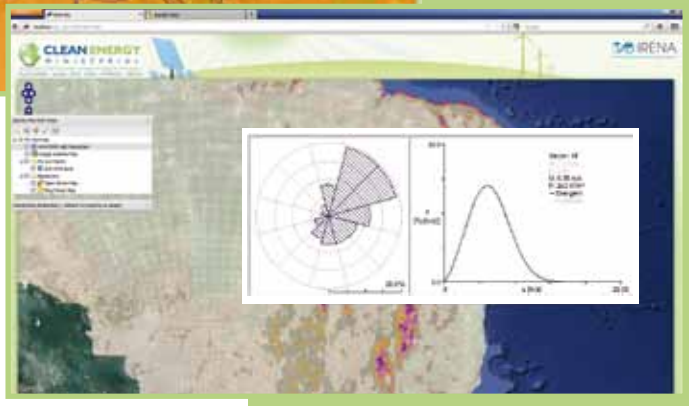
The second phase, from 2013 onwards will concentrate on providing a selection of advanced analysis tools on energy costs, CO_2 emissions and the ancillary effects of developing renewable energy.

What will it do?

The Global Atlas intends to include information on the uncertainty of the resource maps, and it will be interactive to adjust critical parameters.

The Global Atlas will not come up with definite numbers on the potentials, nor restrict available areas, but will enable an interactive highlighting of the areas of most interest for further prospection.

Solar Potential



Wind Statistics

The Global Atlas intends to gather the best information available worldwide, and continuously improve the datasets, through its strong technical partnerships.

The Global Atlas does not intend to be prescriptive, but simply to provide free and public access to high quality data and tools.

This information is useful at a high level to estimate the possible contribution of the technology to the energy mix of the country, pre-identify areas for further exploration through measurement campaigns, initiate the involvement with local communities, and to run simulation models to investigate the behaviour of the electricity system when integrating different shares of renewable energy.

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