Renewable Energy Solutions for the Mediterranean Basin: why and how

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President of RES4MED and CEO of Enel Green Power
Member RIAB of IEA

From Mediterranean Plans to RE Power Plants

Rome, October 3rd, 2012
1. Renewables in Med countries: evidences, barriers and priorities
2. RES4MED mission and objectives
3. RES4MED participants and main activities
Main evidences for RE in Southern Med countries

- Continued **strong electricity demand growth** (+5% per year by 2030) and water demand due to **population increase** (+6-9% for the next 20 years, some more than 80 millions)

- Needed **180-200 GW additional power**, some **320 billions € investment** just in the Southern Med countries and Turkey

- **Huge potential of solar and wind resources** and very large areas of desert or arid land available

- **Priority to local economic and industrial development**: employment, know how transfer, international competitiveness

- **Security of energy supply and diversification** in an unstable political context:
  - Extension of fossil fuels reserve (*Producer Countries*)
  - **Vulnerability** due to **energy dependence** (*Consumer countries*)

Source: OME estimates, 2011.
Mediterranean energy demand per capita

Energy demand per capita gap between the north and south will decrease somewhat by 2030.

North will still be consuming twice as much as the South on a per capita basis (down from three times today).

Source: OME MEP 2011
South Med electricity demand will boom at an av. growth rate of 5% p.a. 320-380 GW will need to be added through out the Mediterranean Region to meet this demand.
Institutional Initiatives in support of National plans

The Mediterranean Solar Plan Union for the Mediterranean

MedReg
Association of Mediterranean Regulators for electricity and gas

Med-TSO
MEDITERRANEAN TRANSMISSION SYSTEM OPERATORS

PWMSP
Paving the Way for the Mediterranean Solar Plan

2007

2008

2010

2012

Objectif 2020
2000 MW

Renewable Energy and Energy Efficiency Program

LE PLAN SOLAIRE TUNISIEN
THE TUNISIAN SOLAR PLAN
National targets for RE in Southern countries
a step change

Renewable Energy targets in North African countries by 2020

...and some projections to 2030 ...

Source: Renewables 2012. Global Status Report, REN21
Source for Tunisia: Tunisian Solar Plan
RE deployment: Barriers

Market barriers
- Lack of bankable reference projects
- Subsidies for conventional energies create market distortion
- So far very little technology transfer and capacity building
- Uncertain institutional, legal and regulatory framework

Financial barriers
- High up-front costs for investors especially relevant for off-grid applications
- High cost of capital for RE investments

Other barriers
- Grid infrastructure & access
- Social acceptance, permitting etc.
RE deployment: Priorities

• An open dialogue among all stakeholders to share options and experience, in order to support decision makers

• Additional tools for technology transfer and capacity building, both institutional and for manager of agencies, utilities, industries

• Develop new green local solutions such as distributed generation, smart grids, solar heating and cooling, desalination

• Strong support from international financial institutions

• Identification of concrete investment opportunities, developing an industrial clustering to attract investments
## Entry options for industrial investors in the Mediterranean RE market

| Entry Options          | - M&A, auctions and greenfield all valid  
|                       | - Choose local partners to improve the risk/return profile |
| Technologies          | - Wind, Solar PV, Solar CSP as future key technologies  
|                       | - Follow the natural resource and the grid (development) |
| Market segments       | - Identify suitable off-takers (utilities, large consumers, retail)  
|                       | - Think of integrating fleets of small-sized plants and supply |
| Grid development      | - Concentrate first on production covering local/national supply  
|                       | - Mitigate the grid connection risk through proximity and size |
| Systemic solutions    | - Lobby for Super Grids, Smart Grids, Demand Side Management  
|                       | - Prepare for phase 2 of your engagement |
New Industrial Initiatives were launched

To address Renewable energies deployment issues, several initiatives have been established by industrial operators to facilitate institutional and national plans.
On going energy initiatives in MED area

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Type</th>
<th>Area of Activities</th>
<th>Technology focus</th>
<th>Year of foundation</th>
<th>N. of members</th>
</tr>
</thead>
<tbody>
<tr>
<td>OME</td>
<td>Industrial</td>
<td>Analysis of energy Issues</td>
<td>All energy, RE and efficiency</td>
<td>1991</td>
<td>33</td>
</tr>
<tr>
<td>MedReg</td>
<td>Institutional</td>
<td>Regulatory framework, supporting scheme</td>
<td>Electricity and Gas</td>
<td>2007</td>
<td>24</td>
</tr>
<tr>
<td>Mediterranean Solar Plan</td>
<td>Institutional</td>
<td>Policy, regulatory framework, supporting scheme</td>
<td>Renewable deployment of 20 GW at 2020</td>
<td>2008</td>
<td>43</td>
</tr>
<tr>
<td>Desertec Industrial Initiative</td>
<td>Industrial consortium</td>
<td>Markets, transmission regulation</td>
<td>Renewables and infrastructures</td>
<td>2009</td>
<td>57</td>
</tr>
<tr>
<td>MedGrid</td>
<td>Industrial consortium</td>
<td>Regulation for grid access for RES producers</td>
<td>Grid network</td>
<td>2010</td>
<td>20</td>
</tr>
<tr>
<td>PWMSP</td>
<td>Institutional</td>
<td>Paving the way to Med Solar Plan</td>
<td>All renewable energies</td>
<td>2010</td>
<td>5</td>
</tr>
<tr>
<td>MedTSO</td>
<td>Industrial</td>
<td>Transmission system in the MED</td>
<td>TSO</td>
<td>2012</td>
<td>16</td>
</tr>
</tbody>
</table>
1. Renewables in Med countries: evidences, barriers and priorities

2. RES4MED mission and objectives

3. RES4MED participants and main activities
A transparent role of "a network of networks"

involving key stakeholders from North Africa, Middle East, Turkey and the Balkans

offering the expertise, knowledge and experience of its members to the whole of the various initiatives

playing a catalyzing role for the ongoing Mediterranean Initiatives
RES4MED focus

- **RES4MED**, an organized “meeting point”, where the studies, analysis and strategies of the MED associations/consortia can converge and be shared in an innovative way – like the “Knowledge Management System” under way.

- **RES4MED** is an area for comparing ideas, exchanging and discussing different points of view, networking various experiences and knowledge in the MED area.

- **RES4MED** aims to become a platform for the training and exchanging of the different technical, institutional and administrative frameworks.

- A promoter of studies, analysis and projects in new fields such as distributed generation, village power, smart cities.
RES4MED intends to closely **liaise with ongoing Initiatives** by:

- **Proposing collaboration with the key Initiatives by means of MoU**, inviting their representative to sit in the Advisory Board
- **Enhancing** appropriate institutional and industrial **strategies**
- **Assessing other’s activities and first results** so far achieved, and **adding value** to their lessons learned
- **Planning exchanges** and comparison of results, organizing **common events** for joint communication and dissemination
- **Creating and sharing a “Knowledge Management System”** to provide a comprehensive overview of what is going on
Agenda

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# Preliminary membership

## Partners


## Affiliates

- APER - Associazione Produttori Energie Rinnovabili
- RSE - Ricerca di Sistema Elettrico
- Althesys

## Institutional support

- Italian Ministries
  (Foreign Affairs, Industry, Environment, Research)
- Camera di Commercio di Milano

The Initiative is now open to international stakeholders
### RES4MED first partners profile

<table>
<thead>
<tr>
<th>Member Name</th>
<th>Type</th>
<th>Sector</th>
<th>Areas of expertise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enel Green Power</td>
<td>Partner</td>
<td>Global renewable energies</td>
<td>All value chain of all RES</td>
</tr>
<tr>
<td>Edison</td>
<td>Partner</td>
<td>European leading utility</td>
<td>Electric power and hydrocarbons</td>
</tr>
<tr>
<td>Gestore Servizi Energetici</td>
<td>Partner</td>
<td>Agency implementation RE policies</td>
<td>Regulatory and market</td>
</tr>
<tr>
<td>CESI</td>
<td>Partner</td>
<td>Energy innovation and operational improvements: consulting and testing</td>
<td>Engineering and Grid studies</td>
</tr>
<tr>
<td>PricewaterhouseCoopers</td>
<td>Partner</td>
<td>Leading consulting firm</td>
<td>Power &amp; Utilities</td>
</tr>
<tr>
<td>Politecnico Milano</td>
<td>Partner</td>
<td>Leading Technical University</td>
<td>R&amp;D and training</td>
</tr>
<tr>
<td>Asja Ambiente</td>
<td>Partner</td>
<td>International developer and building of RE power plants</td>
<td>Biogas, wind, solar</td>
</tr>
<tr>
<td>Terna Plus</td>
<td>Partner</td>
<td>Developing new business in the energy sector</td>
<td>Smart grids, RE, efficiency</td>
</tr>
<tr>
<td>Fondazione U. Bordoni</td>
<td>Partner</td>
<td>Telecommunication &amp; ITC application</td>
<td>ITC in electric markets</td>
</tr>
<tr>
<td>APER</td>
<td>Affiliate</td>
<td>Association of Italian RE producers</td>
<td>Promotion and assistance</td>
</tr>
<tr>
<td>RSE</td>
<td>Affiliate</td>
<td>Research for Italian electric system</td>
<td>Storage, Forecast</td>
</tr>
<tr>
<td>Althesys</td>
<td>Affiliate</td>
<td>RE energy investment analyst</td>
<td>Strategic and financial analysis</td>
</tr>
</tbody>
</table>

A network of 12 Members (9 Partners, 3 Affiliates) with a diversified background and know-how
First priority service:

a Knowledge Management System

Given its role as a “Network of Networks”:

RES4MED starting point is the creation of a shared and exhaustive information platform, to be accessed by exclusive operators, according to a cooperative and mutual exchange spirit

the “Knowledge Management System”

- Access to qualified information through a direct link to sites and databases of initiatives/operators
- Effectiveness in data gathering and straightforward query criteria
- Standardization and comparability of data sources

RES4MED Knowledge Management System is aimed at:

- Creating synergies within a privileged network
- Avoiding duplication of already existing analyses
- Sharing skills and know-how
- Identifying potential partnerships
- Creating efficiencies in management of development funds
First priority service: a Knowledge Management System - Content

1. Strategic information of ongoing studies
2. Specific reference projects
3. Additional documents on specific issues
Value for Partners of RES4MED

• Become part of a wide RES4MED platform of industrial, institutional, political and financing stakeholders

• **Interact with leading Initiatives**, Consortia, Partnerships (Desertec Dii, Medgrid, OME, Medreg, UfM, MED TSO, etc)

• **Propose and/or partecipate to specific projects/analyses**

• Reserved access to the “**Knowledge Management System**”

• Leverage on RES4MED brand for **communication** activities, and learning events

• Presence on the **Partners Factsheet, Annual Report and Newsletter** (in preparation)
RES4MED in support of the IEA

• Make use of the outstanding analytical products of the IEA RE Division and the results of the cooperation agreements on key technologies

• Engage in providing additional visibility to IEA RE messages and their strategic recommendations, such as roadmaps, policy deployment, scenarios both in the Knowledge Management System, in its projects and in the broad selected Communication tools

• Support to the IEA initiative on Low Carbon Technology Platform and create a direct bridge with Med basin

• Input to IEA RE Industry Network and the RE Industry Advisory Board in the Medium term market report and in new initiatives
RES4MED Next steps

• **Dialogue** with ongoing Initiatives and creation of **Advisory Board on 12\textsuperscript{th} November at Euromed Milan**

• **Create a true** South Mediterranean and Balkans **international membership** - agencies, utilities, industries, academia

• Provide the **“Knowledge Management System”** in operation by November

• Perform prefeasibility studies of new RES4MED projects involving Med partners by spring 2013

• **Contribute to organize high level meetings** *(today with IEA and RIAB and Euromed Milan 12 November)* to discuss critical factors and propose shared solutions/options
Thanks for your attention

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