Moroccan Solar Plan
Status of the CSP Market Development – S1 2012

Source: Bloomberg New Energy Finance
### Status of the CSP Market Development Country – S1 2012

<table>
<thead>
<tr>
<th>Country</th>
<th>Commissioned</th>
<th>Financing secured / under construction</th>
<th>Permitted</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td></td>
<td>2,000</td>
<td>2,271</td>
</tr>
<tr>
<td>Spain</td>
<td></td>
<td>2,738</td>
<td></td>
</tr>
<tr>
<td>India</td>
<td></td>
<td></td>
<td>634</td>
</tr>
<tr>
<td>China</td>
<td></td>
<td></td>
<td>435</td>
</tr>
<tr>
<td>South Africa</td>
<td></td>
<td></td>
<td>300</td>
</tr>
<tr>
<td>Morocco</td>
<td></td>
<td></td>
<td>180</td>
</tr>
<tr>
<td>United Arab Emirates</td>
<td></td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>Australia</td>
<td></td>
<td></td>
<td>51</td>
</tr>
<tr>
<td>Greece</td>
<td></td>
<td></td>
<td>38</td>
</tr>
<tr>
<td>Egypt</td>
<td></td>
<td></td>
<td>20</td>
</tr>
<tr>
<td>Algeria</td>
<td></td>
<td></td>
<td>20</td>
</tr>
</tbody>
</table>

Source: Bloomberg New Energy Finance
The Moroccan Solar Plan

MIN Capacity 2 000 MW
Deadline 2020

5 sites defined

<table>
<thead>
<tr>
<th>Sites</th>
<th>Capacity in MW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ouarzazate</td>
<td>500</td>
</tr>
<tr>
<td>Ain Beni Mathar</td>
<td>400</td>
</tr>
<tr>
<td>Sebkha Tah</td>
<td>500</td>
</tr>
<tr>
<td>Foum El Oued</td>
<td>500</td>
</tr>
<tr>
<td>Boujdour</td>
<td>100</td>
</tr>
</tbody>
</table>
An Integrated and Multi-dimensional Vision

Valuation of a unique resource

Optimal Valuation Of Solar Ressource

2,000 MW by 2020

14% installed cap

R&D

Training

Industrial Integration

Morocco

Europe

World (CO²)
Masen, in charge of the Moroccan Solar Plan

**Purpose**

Lead the development of integrated solar projects of 2,000 MW or more by 2020
(utility-scale solar power production, local industry development, R&D, training)

---

**Legal form:**

Joint stock created in March 2010

**Governance:**

Management Board and Advisory Board

**Capital share allocation:**

500,000,000 dirhams
State, ONE, Fonds Hassan II et SIE (equally)

---

**A clear Institutional Framework, supporting Masen action**

**Framework State-MASEN (decree)**

Modalities, technical requirements and financial balance guarantee for each project throughout the realization of the solar plan

**Framework State-ONE-MASEN**

- Rules and terms guaranteeing purchasing, transporting, and commercializing the electric power produced
Ouarzazate Solar Complex, operational priority for Masen
Ouarzazate Complexe (OZZ1), multi-phases et technologies

Multiple phases

- Phase 1: entre 125 MW et 160 MW
- Phase 2
- Phase ...

Technology Agnostic

- Concentrated Solar Power/Parabolic Trough
- CSP (Parabolic Trough, Tower...)
- Photovoltaic

R&D Platform dedicated to solar technologies

Common infrastructure buildup under way

Phase 1: 125 – 160 MW

Tender final steps underway
OZZ Project key milestones

Structured approach....

- **Initial studies**
  *For the entire site including most key topics*

- **Technical Configuration**
  *According to best international practices*

- **Institutional and financial structure**
  *Innovative to reduce costs*

- **Selection process**
  *With intense competition*

- **Industrial integration**
  *Maximise Economic Effects*

- **Site infrastructure**
  *Improve visibility and optimize risks for developers*

...with initial results in OZZ1, despite current economic climate

- **Strong participation of most major global market players**, present in different parts of the value chain
  
- **Bidders Engagement** to maximise local industrial value and job creation from the first project
  
- **Competitive offers**, demonstrating Morocco’s attractiveness for solar power projects.
OZZ 1, tender finalisation in Q3 2012

OZZ 1 160 MW Tender Progress

**Etape 1**
- Lancement de l’AO (1ère étape)
- Retour sur les term sheet (TS) et Addendum
- Réponse candidats (offre technique)
- Évaluation des offres techniques
- Echange individuels (signature PVs)
- Finalisation du rapport évaluation

**Etape 2**
- Préparat. lancement de l’AO (2ème étape)
- Réponse candidats (offre technique finale et financière)
- Evaluation de offres et Contractualis

---

**Etapes futures**
- Appel à manifestation d’intérêt
- Préqualification

**3 consortia still competing**

<table>
<thead>
<tr>
<th>Membre Leader</th>
<th>Abeinsa</th>
<th>ACWA</th>
<th>ENEL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Membres Opérationnels</strong></td>
<td>Abengoa Solar, Mitsui, Taqa</td>
<td>Aries Ingenieria y Sistemas, TSK Electronica y Electricidad</td>
<td>ACS Servicios Comunicaciones y Energía</td>
</tr>
</tbody>
</table>

Avis de Non Objection des IFIs
Next phases for OZZ complex

Planning for the remaining capacity (350 MW)

<table>
<thead>
<tr>
<th>Technology</th>
<th>Capacity</th>
<th>Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSP</td>
<td>300 MW</td>
<td>Pre-qualification process launch by end of 2012</td>
</tr>
<tr>
<td>Including CSP Tower</td>
<td>To be defined</td>
<td>Pre-qualification process launch by end of 2012</td>
</tr>
<tr>
<td>PV</td>
<td>50 MW</td>
<td>Following CSP</td>
</tr>
</tbody>
</table>
Solar projects, development lever for remote regions

OZZ solar complex, first actions Masen undertook to maximize socio-economic impact in region of power project development

Preparing an inclusive sustainable development pamphlet for the ongoing and the upcoming power project and common infrastructure tenders with special attention to local employment and the strengthening of regional capacities

Conducting initial studies on supporting local villages (roads, potable water, waste management...) and overall investment inclusive of relevant infrastructures

Implementing comprehensive program for the region, in partnership with the relevant local authorities and regional/national institutions

Several volunteer and socially responsible actions for the region (equipping and setting up solar panels for an orphanage, educating local students on sustainable development,...)
Increasing local content and developing a targeted industrial capacity for the international market

- R&D and training
  - Technological transfer, innovation
  - Industrial marketability, Cluster development
- Advocacy
  - Demonstration, experimentation, dissemination
- Industrial Development
  - Targeted industrial solutions addressing the international market
North and South Mediterranean Integration

### International

**Worldwide interest and European leadership**
(public institutions, industry players, market development professional associations...)

**Favorable regulatory framework:**
- % REN by 2020: 20%
- Article 9, in favor of energy cooperation with non EU countries

**Uncertainty in regards to European countries to meet the 2020 objective** (subsidy reduction, infrastructure costs....)

**Optimize solutions to meet European needs**

### National

**Intrinsic assets**
- Solar Irradiation
- Well-suite land
- EU Proximity

**Country maturity in establishing PPP and in delivering large-scale industrial development projects**

**Existing interconnexions:**
- Morocco – Spain
- Maroc – Algeria

**Strong assets for the production and the transmission of solar electricity**
Raising awareness for more solar adoption and well-suited sustainable support mechanisms...
Thank you for your attention