The Fourth Energy Generation is the Smart policy of Renewable and Energy efficiency in Arab Countries

2RE SUMMIT in Kazakhstan

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Eng. Mohammed Al Ta'ani
Arab Renewable Energy Commission
Secretary General
Jordan Renewable Energy Society/JRES

NGOs are main in sustainable development

- JRES emerged in (6-8-2008).
- JRES work with all sectors to promote the use of renewable energy in various sectors.
- HRH Prince Assem bin Nayef the chairman of JRES.
Awareness Campaigns

- Examples of different applications of solar energy
Today

- Oil prices
- Economic crisis
- Climate Change

Result

most industrial countries designed economy recovery packages include "green stimulus" measures
Global Energy Sources

- Traditional Energy sources
  - Oil
  - Cool
  - Gas

- Renewable Energy Sources
  - Wind
  - Solar
  - Hydropower
  - Bio energy
  - Geothermal

- Nuclear Energy
  - A viable energy option

Unsustainable

Sustainable
PV System prices

- Drop by 70%

$4000- $6000 /KW to $1200-$1800/KW

Bioelectricity generation
108 TWh, 2008 to 200 TWh by 2020

2010 sales about $75 billion
$174 billion by 2014

Source: Renewable ENERGY World Magazine
Why Energy Mix

- It is essential in the energy map to secure the energy supply
- Regional cooperation
- Sustainability
- Minimize living cost
- Energy management
### Energy strategy For Jordan

<table>
<thead>
<tr>
<th>Source of Supply</th>
<th>2007</th>
<th>2015</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imported Electricity</td>
<td>7%</td>
<td>2%</td>
<td>1%</td>
</tr>
<tr>
<td>Renewable Energy</td>
<td>1%</td>
<td>7%</td>
<td>10%</td>
</tr>
<tr>
<td>Oil Shale</td>
<td>0%</td>
<td>11%</td>
<td>14%</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>26%</td>
<td>29%</td>
<td>29%</td>
</tr>
<tr>
<td>Oil products</td>
<td>66%</td>
<td>51%</td>
<td>40%</td>
</tr>
<tr>
<td>Nuclear Energy</td>
<td>0%</td>
<td>0%</td>
<td>10%</td>
</tr>
</tbody>
</table>
Arab Renewable Energy Commission (AREC)
What is AREC?

- JRES initiative.
- Cooperation & integration of Arab effort.
- Approved by Royal decree in 2014
- Work under the Arab Economy Unity council
RE & EE Investments & Prospects in Arab by 2030

- More than 500 Billion $.
- Target more 70 Giga watt from RE.
- Jordan 1200 Mwp.
- Morocco up to 50 Billions total investment by 2030.
- KSA expected 49 Gwp.
- EE 20% by 2030 encourage Smart Grid EWE in the Arab countries.
- Green building
- Smart solutions for Smart cities on going plans
RE & EE Investments & Prospects in Arab by 2030

- Electrics Vehicles and Green transportation
- Green buildings
- Waste to Energy in municipalities
- Energy Storage
- Renewable energy for Agriculture and irrigations
Why

- Reach 10% RE use by 2020 & 20% by 2050
- Tariff law? Incentives? green buildings’ code?
- Solar cells factories?
- Current RE investments in Arab countries?
- Social Behavioral Change? Adaptation on different levels?
- Annual meeting to follow up with RE development?
Objectives

- Investment inflow.
- Employment opportunities.
- Legislation reforming.
- Stimulating RE in economic & social development.
- Energy efficiency & conservation measures.
- Arab fund to support related scientific research.
- RE NGOs in all Arab Countries.
Energy Map in Arab Countries

- 10% - 20% Renewable Energy use, 2020.
- More potential.
- Awareness (customers & decision makers).
- Know How!!!!!!!!!!
For Smart Cities

- Green transportation EVs
- Waste energy management
- Green building codes incentives
- Sustainable houses and compounds
- Scientific parks
- Circular economy for water, energy and food.
- Agricultures lands
RE Energy in Arab Countries for 2015-2018

• New factories establishes: Qatar, Egypt, Jordan, UAE And KSA.
• Many new companies established for RE & EE in different Arab countries.
• Net metering in Jordan and green building codes.
• Smart grid.
Facts and history of energy demand in Arab countries

- In 2008 total electric rated power generation in Arab countries = 171 GW.
- Peak load of electricity in Arab countries:
  - In 2004 → 98.2 GW.
  - In 2008 → 129 GW.
- And expected to reach 200 GW in 2015.
- Increased electricity demand in average 6.2% in (2000 to 2008) which need more electricity generation (50GW) by 2015.
Facts on RE in Arab Countries

- All Arab countries target 20% of their total energy demand from RE.
- Coming investment on renewable energy will be more than 200 billion by 2020.
- Many Arab countries already start their projects and I think their target will be more than 60 GW.
- Many green job career are open now...
RE Use Limitations in Arab Countries was ??? The Fourth Energy Generation is the Smart policy now

- Weak polices which target to establish corporations.
- Strategic restrictions.
- Technical gap.
- Weakness of Marketing.
- Awareness.
- Fed in tariff.
Present Situation for RE Projects in Jordan

- We target 1200 MWp PV projects for public and private.
- Net metering system is working in Jordan to encourage house holding using PV on grid system.
- 800 MW target from wind energy.
- 600 MW target from Bio energy.
- Prices (Solar PV 12 cent kwh, 8 cent JD from other renewables).
Social Aspect

- Local development.
- Public involvement and participation.
- Economic development and Job creation.
- Green transportation (reduce footprint).
- Behavioral change.
- Pilot project (JRES Eco Houses).
Design and Construction of JRES

Go points for design and construction of JRES Green building:

- Totally sustainable for water, energy and food as zero fossil fuel house and no gas emission.
- Smart monitoring and control for all EWE systems.
- Totally off grid PV and wind energy with pack up system for three cloudy days.
- LED Lighting Combined with Daylight Streaming Technology.
- State of the art cooling and heating systems. Cooling system by using solar energy technology in summer and solar heating in winter.
- Solar thermal for domestic use.
- Energy efficiency.
- Water efficiency.
- Waste management and recycling for garbage and gray water.
- All systems and wiring should be connected to data logger base of the internet for data available 24 hours.
- Smart landscape and the building area most be less than fourth of total land.
6G’s Concept

- Green Energy
- Green Culture
- Green Government
- Green Generation
- Green Economy
- Green Building
GREEN GENERATION EXAMPLE FROM Netherlands

www.youngsolarschallenge.nl
Green generation Netherlands
We believe in culture exchanges is essential for global citizens and sustainability for all.
Fourth Energy Generation need to apply “9Gs Concept”

- Green Generation
- Green schools
- Green Culture
- Green Buildings
- Green Energy
- Green transportation
- Green Revolution
- Green Economy
- Green Government

- Smart Solution of EWE grid solutions
- Reduce Green House effect
- global citizens and sustainability for all
Thank you... together we can do