Overview of the potential for Renewable Energy in the Industrial Sector in Jordan

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Jordan Chamber of Industry

- Jordan Chamber of Industry (JCI), was founded under the Chambers of Industry Law No. 10 for the year 2005.

- JCI is characterized as being an independent corporate entity financially and administratively.
The Industrial Sector

Total Number of Firms: 17633

Total Number of Employees: 219,737

Total Registered capital: (JD Million) 4399.4

Total exports (JD Million) 5005.5
Energy and Environmental Sustainability Unit (EESU)

The establishment of the EESU in 2015 came as a response by the Chamber’s Board of Directors to the recent challenges facing the industrial sector in the field of energy due to the higher energy prices and frequent interruptions to the power supply in light of the political turmoil in the region.
EEUS Vision

Towards a competitive industrial sector capable of growth on the basis of the green economy
EEUS Mission

Help industrial enterprises and enable them to practice the principles of energy management and environmental sustainability through representing and defending their interests, provide them with the required knowledge and design programs that empower them to achieve sustainable development
Energy in Jordan (Overview)

➢ Jordan's top priority is achieving energy supply security and diminishing dependence on imports while meeting the growing demand for primary energy.

➢ Jordan imports around 96% of the energy needs.

➢ The yearly expected growth of primary energy demand is 5.5%.

➢ The yearly expected growth of electricity demand is 7.4%.
Energy in Jordan

• The cost of consumed energy is around 6200 Million $ which constitutes around 17.3% of GDP.

• The Renewable energy and energy efficiency law is the first in the region allows investors to identify and develop grid – connected electricity production projects.
Energy in Jordan

- According to energy strategy in Jordan the share of renewable energy will be 10% in the primary energy mix by 2020.
Energy and Industrial Sector

- The Third Largest Energy – Consuming Sector
- The Second Biggest Electricity – Consuming Sector

Around 17% of Total energy Usage in Jordan

Around 24% of the Total Amount of Electricity Used
Energy and Industrial Sector

• Energy is a major component of economies in the industrial sector, so because of the raising of energy and electricity costs, energy efficiency and energy saving are important requirements for industry to be competitive at local and regional and global levels.

• Most of the industries have high thermal energy demands and their competitiveness is threatened due to high energy prices in Jordan.

• Around 66% of the industrial energy demand is for heat. Thus, industrial process heating is responsible for around 12% of the total final energy demand in Jordan.
Energy use in the industry

The electricity cost as a percent of all operating costs for some industrial sectors:

<table>
<thead>
<tr>
<th>No.</th>
<th>Industrial Sector</th>
<th>Electricity cost as a percent of all operating costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Plastic and Rubber Sector</td>
<td>50.5 %</td>
</tr>
<tr>
<td>2</td>
<td>Construction Industry Sector</td>
<td>35.1 %</td>
</tr>
<tr>
<td>3</td>
<td>Food Sector</td>
<td>34.8%</td>
</tr>
<tr>
<td>4</td>
<td>Packaging Sector</td>
<td>32.3%</td>
</tr>
<tr>
<td>5</td>
<td>Furniture Sector</td>
<td>31.9%</td>
</tr>
<tr>
<td>6</td>
<td>Mining Sector</td>
<td>27.3%</td>
</tr>
<tr>
<td>7</td>
<td>Leather and Garments Sector</td>
<td>26.6%</td>
</tr>
</tbody>
</table>
Why EE & RE?

• Energy efficiency and renewable energy policies have been defined as the “twin pillars” of a sustainable energy future.

• The combined application of RE and EE in industry is a key demand for industry operators who have the foresight to convert their plants from using fossil fuels to renewable fuels are very likely to maximize the value of the renewable fuel and maximizing the efficiency of the energy resources use in their plants.
Importance of RE for the industry

- Decreasing Energy cost – Increase competitiveness.
- Hedging of the continuous rise in electricity prices.
- Sustainable and Cheap energy resources – stable energy cost.
- Decrease emissions – Environmental impact.
Key Renewable Energy Sources used in the Industrial Sector

Solar Power

- Photovoltaic
- Solar-thermal

- Most Common technologies.
- Available skilled and experienced suppliers.
- Available skilled operators, engineers and technicians.
- Accepted and decreasing cost.
- Suitable and feasible for needed applications in the industry
Main Energy Challenges in the industry

- High energy prices especially electricity prices, in comparison with neighbor countries.

- Fluctuating Electricity prices with monthly increase

- High cost of renewable energy systems for electricity generation or for thermal heating

- Limited financial resources for energy projects and lack of supporting and funding schemes available.
Main Energy Challenges in the industry

- Difficulty in obtaining the approvals for connecting the projects to the electricity grid.

- Need for proper management to integrate sources of renewable energy into the electric grid.

- Lack of awareness about EE and RE.

- Need for capacity building for the engineers in the industries.
Challenges facing CSP and CSH in Jordan

• Less Common technologies – limited used until now.

• Low awareness about the technology.

• needs for skilled and experienced local suppliers.

• needs skilled operators, engineers and technicians.

• High investment cost needed.

• Higher pay back period in comparison with other technologies.

• Suitable and feasible for specific applications in the industry.
Potential for CSP and CSH in the industry

- Jordan represents a very promising market for the technology.

- Which is evident from the annual daily average solar irradiance on a horizontal surface ranges between 5–7 (kWh)/m\(^2\); one of the highest figures in the world.

- Estimated 330 days of sunshine per year, is also blessed with relatively moderate temperatures and low dust and humidity levels: ideal conditions for the use of this technology.
Potential for CSP and CSH in the industry

• Valid and suitable for different industrial sub-sectors for specific applications such as:

1. Food and beverage industry
2. Textile and leather industry
3. Paper industry
4. Pharmaceutical industry.
5. Chemical industry.
6. Plastics and rubber industry

• Financial schemes initiatives would be an attractiveness for the industries

• Awareness campaigns would be an additional factor for raising the awareness about the technology
Energy and Environmental Sustainability Unit

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Thank You