Birzeit Pharmaceutical Company
Palestine
Eng. Moath Bornat
OVERVIEW

- Birzeit Pharmaceutical Company (BPC) is Palestine's leading manufacturer of generic medicines, BPC was established in 1974 in Birzeit village.

- The company's staff mounts up to 350 qualified and high-caliber employees.
OVERVIEW

- Obtaining the latest quality standards certificates such as cGMP (Current Good Manufacturing Practices), ISO 9001 & ISO 14001.

- BPC market is not limited to the Palestinian Territory, the company has a well-established presence in different export markets – mainly Algeria and East Europe.
BPC INTEREST IN SOLAR ENERGY

- BPC already invested in solar energy for domestic hot water using solar panels.

- The design is based on the following requirements:
  - Average Hot Water Daily Demand: 6 m³,
  - Temperature required is 60 ºc.
  - Roof available is 400 m².
ENERGY INFORMATION

- The company uses two types of energy sources mainly electricity, and diesel as shown below:

<table>
<thead>
<tr>
<th>Energy Sources</th>
<th>Energy Consumption 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>JDECO</td>
<td>Total Electrical Consumption: 3,021,128 KWh</td>
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<tr>
<td>Diesel Fuel</td>
<td>Total Diesel Consumption: 220,000 L</td>
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</tbody>
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- Energy Audit conducted at BPC facility indicted the need for more management of available energy resources and considerations for substitution of such recourses with solar power.
SPACE AVAILABLE ON ROOF

Space available on roof about 1100 m²
FACILITY STEAM PRODUCTION

- Facility Steam Production consist of industrial and clean steam. There are three industrial steam boilers. Only one diesel boiler is operational and the other two are stand-by boilers. Clean steam production by WFI Unit. Clean steam is produced by heat exchangers that utilizes industrial steam at 6 bar to produce clean steam at 3 bar from distilled water.

- Steam Boiler specifications:
  - HDR 160 Reverse-flame steam boilers.
  - Steam output 1600 kg/hr, 1116KW.
  - Pressure set point (6 bar).
  - Diesel fuel.
**Main application of steam in our facility**

- **WFI units**
- **Dehumidifiers**
- **Double Jacket Mixers**
- **Coating machines**
MAIN APPLICATION OF STEAM IN OUR FACILITY

- Load 1: Dehumidifier (185 KW) @ 6 bar
- Load 2: Dehumidifier (149 KW) @ 6 bar
- Load 3: Dehumidifier (83 KW) @ 6 bar
- Load 4: 2-Coating machines (110 Kg/h, 66 KW) @ 2 bar
  (130 Kg/h) @ 3 bar
- Load 5: Heat exchanger (30 KW) @ 3 bar
- Load 6: Heat exchanger (30 KW) @ 3 bar without return.
- Load 7: Autoclave (30 Kg/h) @ 3 bar without return.
- Load 8: Distilled Water Unit (195 Kg/h) @ 6 bar
CONSTRAINTS AND SPECIAL CONDENSATION

- Investment & payback period.
- Space availability on site.
- Generation stability of steam (constant pressure & flow during production).
- Productivity per square meter.
- Static Load on roof (weight per square meter).
- Working efficiency in winter.
- BPC staff low experience in CSH field.
FINALIZING POINT

BPC is interested in CSH program for more clean & economic energy resources

Thank You