Energy Efficiency Project
Tourism Sector

12 Hotel 3&4 Stars
Petra-Jordan

Jordan Renewable Energy and Energy Efficiency Fund-JREEEF
Ministry of Energy and Mineral Resources-MEMR
Project Methodology

Agreements
• Signing an agreement with the participated hotel.
• Agreed on a suitable financial window.

Energy Audit
• Conduct an EA study by an licensed Energy service company - Tender.

ECM Implantation
• Implement the most feasible ECM - agreed with Hotel owners - Tender.

M&E
• Monitoring and Evaluation system.
• Internal evaluation - hotels & companies.
• Third party evaluation - Tender.
- 12 agreements was signed with 12 hotel in Petra.
- 12 EA was fully funded by donor (120,000 $)
- ECM was cost shared (1,030,000 $)
- JREEEF contribution was (257,500 $)

- Total Project cost : (1,150,000 $)
<table>
<thead>
<tr>
<th>ECM / Hotel</th>
<th>Al Anbat</th>
<th>Amra Palace</th>
<th>Candles</th>
<th>Edom</th>
<th>Tetra Tree</th>
<th>PETRA MOON</th>
<th>PETRA PALACE</th>
<th>SELLA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change lighting into LED</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Motion sensors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>VRF System</td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>AC with VFD</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Exchange Diesel with GAS Boiler</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Boiler Recalibration</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Change Pumps</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Install VFD</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Wall Insolation</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Water Pipeline Insolation</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Widows Nano film</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>SWH</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>
Replacement of old lighting Lamps with LED lamps
Replacement of old Diesel boiler with Gas boiler
Implementation of variable frequency drives for Pumps.
Results / Indicators / Savings

- 136 kWh/Year Gas Reduction
- 690,000 kWh/Year Electricity Reduction
- 1,132,000 kWh/Year Fuel Reduction
- **Total** 262 TOE/Year Reduction
- 720 Ton CO2 Reduction
- 125,000 $/Year Saving
Thank you