09.02.2021 | 10:30 - 12:00 CET

Technology Demonstrators: Heat Pump technology and processes of the future

Online Seminar
Heat4COOL project has received funding from the European Union’s Horizon 2020 research and innovation program under grant agreement No 723925

Valencia Site
Antonio Mingo  (Solintel)
1. Project introduction

2. Valencia Pilot Site

3. Positive impacts and results to be highlighted
1.-Project introduction

The Heat4Cool project is an EU funded project, started in October 2016 and operated for four years.

The project proposes innovative, efficient and cost-effective heating and cooling solutions to optimize the integration of six technologies:

- Adsorption heat pump
- PCM storage batteries
- SCI-BEMS
- Solar PV
- Solar thermal
- Heat recovery from sewage water
1.-Project introduction

The integrated solutions will provide:

- Space heating, cooling and domestic hot water in one case by integrating new technological solutions.
- Renewable energy solutions
- Smart control system

Heat4cool aims to achieve:

- Reduction of 30% in energy consumption in a technically, socially, and financially feasible manner.
- Demonstrate a return on investment lower than 10 years.
- Provide best practices examples for the construction sector.
1.- Valencia Pilot Site
1.- Valencia Pilot Site
3.- Positive impacts and results to be highlighted

**Adsorption Chiller**

- Under proper conditions system operates efficiently with a real COP value close to 0.5 as theoretical estimation.
3.- Positive impacts and results to be highlighted

Adsorption Chiller

It results critical for proper adsorption pump operation to install it inside (a room or case) and a correct sizing and installation of cooler system.
3.- Positive impacts and results to be highlighted

Adsorption Chiller

- Pre-existing infrastructures malfunction could produce serious interferences in normal system operation.
3.- Positive impacts and results to be highlighted

**Solar system**

- Extensively tested technology under structural restrictions according with building configuration
- Adequate sizing in suitable conditions allows to extend the operation of the adsorption pump beyond daytime.
- Direct functionality for heating and DHW applications
- Producing 50% total heating energy building consumption (Valencia Pilot)
3.- Positive impacts and results to be highlighted

**Adsorption Cooler**

- Geographical replicability according with local climatical conditions

<table>
<thead>
<tr>
<th>Solar Radiation (Kwh/m²)</th>
<th>Summer</th>
<th>Winter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area I</td>
<td>&lt;3.8</td>
<td>Soft and rainy</td>
</tr>
<tr>
<td>Area II</td>
<td>3.8 to 4.2</td>
<td>Cold and dry</td>
</tr>
<tr>
<td>Area III</td>
<td>4.2 to 4.6</td>
<td>Very cold and dry</td>
</tr>
<tr>
<td>Area IV</td>
<td>4.6 to 5</td>
<td>Soft and dry</td>
</tr>
<tr>
<td>Area V</td>
<td>&gt;5</td>
<td>Semi-soft and dry</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
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<th>Cooling Saving</th>
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<tbody>
<tr>
<td>Area I</td>
<td>7.41%</td>
</tr>
<tr>
<td>Area II</td>
<td>4.63%</td>
</tr>
<tr>
<td>Area III</td>
<td>3.48%</td>
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<tr>
<td>Area IV</td>
<td>30.75%</td>
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<tr>
<td>Area V</td>
<td>35.33%</td>
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Thank you for your attention

Please, for any doubt don’t hesitate to email me
antonio.mingo@solintel.eu