<table>
<thead>
<tr>
<th>Location of the infrastructure</th>
<th>Portici, Naples- Italy</th>
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<th><a href="mailto:raffaele.fucci@enea.it">raffaele.fucci@enea.it</a></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Contact persons</td>
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</table>

**CPV Outdoor Solar cells, Modules and system characterization**

**Objectives:** Characterization of CPV solar cells, module and systems

**Main features:**

The outdoor facilities are based on the following sun trackers all them with tracking based on Sun-sensor and Calculation mode:
- Phocus tracker area 32 m² accuracy +/- 0.2°
- Atec Robotic Solar tracker 2x2 m² accuracy +/- 0.02°
- EKO Sun Tracker STR-22 accuracy +/-0.01° Payload 1.5 Kg balanced

The first two sun trackers are used for PV-C module I-V characterization, the last one for outdoor I-V characterization of PV-C solar cells and optical efficiency, the experimental focal length measurement of concentration lens, and energy rating and performance characterization of PV-C solar cells.

For the Eko Sun trackers the solar cell temperature can be varied by 20°C up to 80°C and a specific procedure developed by Enea can also assure the change in direct incident light intensity.

Accuracy characterization of solar tracker position respect sun and PV-C module position respect sun can be assured by a sun pointer probe developed and patented by Enea and based on a PSD detector having an accuracy of 0.01°.

The temperature of PV_C modules is measured by PT-100, and IR Vision can also be assured for thermal mapping. The direct solar irradiance and global irradiance is acquired through First class Pyrheliometer/ pyranometer Eko while the solar Spectrum is acquired in the range 200-1700 nm through a Dual-DSR StellarNet Spectroradiometer.

The access will be allowed with technical and scientific assistance from Enea.

**Limitations or constraints:**

**Typical services or results:** The facilities can assure a complete operative performance analysis in outdoor condition of PV-C lens, solar cells, PV- C modules, and array –string of PV-C systems. The facility currently participate to round robin procedures.

**Examples of research projects:** The facility was used on many national and FP EU funded research projects including 7FP project Apollon.