

**Location of the infrastructure :**

Milano, Italy

<http://www.rse-web.it>  
<http://fotovoltaico.rse-web.it>
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**Objectives :**

Outdoor testing on PV systems

**Main features :**

Testing and characterization of :

1. single thin film modules (CdTe, CIS, a-Si) of any size, for performances and energy production;
2. irradiance sensors based on standard Si cells (calibration of working reference cells);



3. innovative PV systems (usually from 1 to 20 kW peak power), using accurate data acquisition tools (developed by RSE) for analysis of DC and AC electrical parameters, in-site environmental data and evaluation of performance yields and reliability.

**Limitations or constraints :**

For safety reasons, users are not expected to operate the systems by themselves. Tests are carried out by the skilled and experienced RSE staff, who also gives support for the preparatory work and the data processing and analysis. The scheduling of the experiments will be done jointly with the users, according to the availability of the distributed energy resources on the planning of one of the experimental platforms. The users will be provided with all measurement data, and, if required, with a report produced in collaboration with RSE staff.

**Typical services or results :**

- Peak power measurement under real outdoor operation conditions
- Energy measurements of PV systems
- Comparison of ageing of different PV technology
- Preparatory work: installation of the devices, including electrical connection and specific instrumentation, preparation of a test procedure on the basis of the users requests, programming of the experimental conditions
- Realization and follow-up of the experiment
- Support for the data processing and analysis or test report preparation

**Examples of research projects :**

 DERLAB – [www.der-lab.net](http://www.der-lab.net) , DERRI – <http://www.der-ri.net> , IEA PVPS – [www.iea-pvps.org](http://www.iea-pvps.org), and RDS – Ricerca sul sistema elettrico (Italian government funded research)