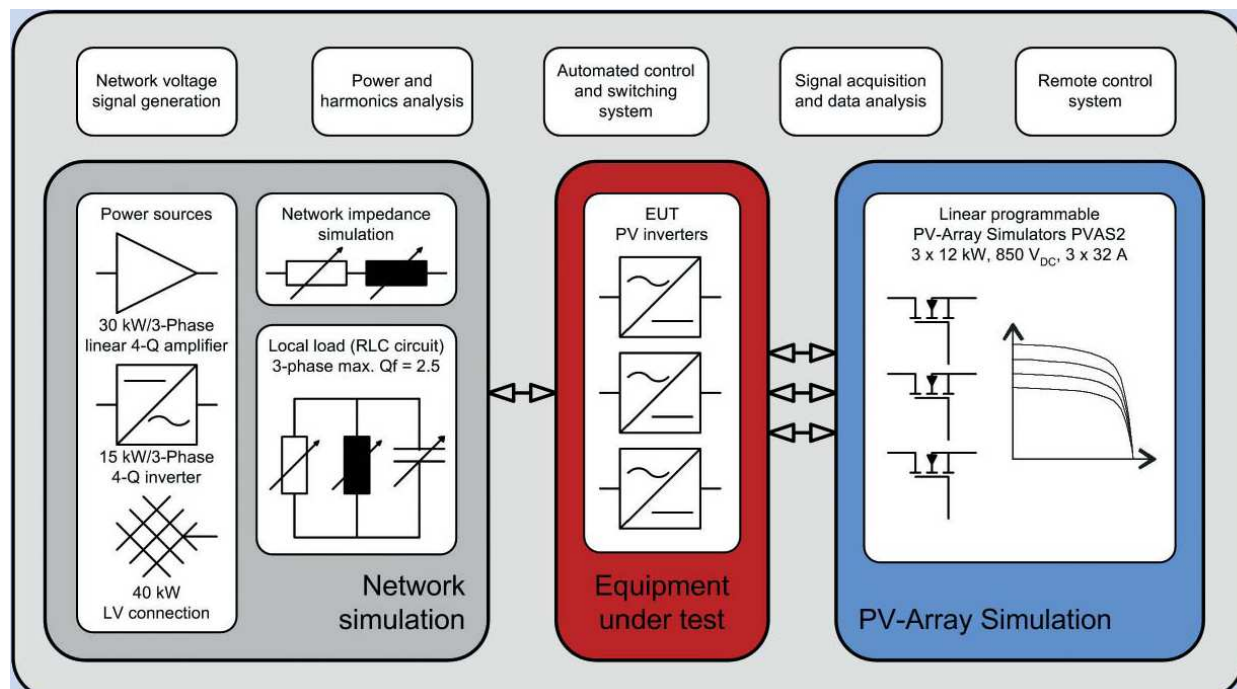


AIT Research Services

The AIT DG lab + AIT PSC offer a comprehensive portfolio to test and analyze components and systems from small power electronic converters (up to 30kW) up to high power and high current devices. The laboratories enable to perform standard test procedures on power system devices and renewable energy components as well as research and development on hybrid switches, power converters and power system networks (on physical hardware and simulation). The described state-of-the-art equipment and services in the field of extensive power system applications offered to users make it unique in Europe. Despite the independent use of the facilities, they could be combined to get an expanded functionality of the overall research infrastructure.

Within the proposed project, AIT DG Lab and AIT PSC facility will be open to give access and provide services to researchers for their experiments, demonstrations and validations of the operation of small-scale inverter based distributed generators, RES components, high power components, simulated power system networks and network controls.

- Performance and operational tests of distributed generators under different generation conditions and interconnection topologies with reference to the illustration below.
 - A high bandwidth linear voltage amplifier enables a single and three phase AC supply with user-defined waveforms
 - A set of three high bandwidth linear DC current sources enable a multiple DC supply with user-defined characteristics. PV module characteristics are pre-defined.
 - Re-configurable AC circuit (remotely controllable) including line impedances and RLC loads
- Qualification testing and conformity assessment of PV inverters and protection devices according to diverse national standards and recommendations
- Experimental real-time simulation platform for advanced Power Hardware in the loop and Controller hardware in the loop analysis (OPAL-RT).



- Research and Testing Services for low voltage, medium and high voltage switchgear and control gear (Circuit breakers, switches, switch-disconnectors, disconnectors, fuses, switch-

fuse combinations, protective devices, tap changers), Static converters, Power and measuring transformers, cables, lines and armatures.

For safety reasons, the users are not expected to operate the systems by themselves. Tests are carried out by the highly skilled and experienced AIT staff members who also give support during 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.

Researchers and technicians of AIT are always present in the labs, offering continuous support for using test equipment. Users have the possibility to contribute to ongoing projects and to perform relevant tasks, including serious discussion with researchers of AIT. Workstations with all relevant software installations will be provided. Individual research topics and test configurations can be realized within technical specifications of the laboratories. The user/user group will have unlimited access to the related internal project database - including relevant standards, related documents - and external scientific databases. The users will be provided with all measurement data, and with a report produced in collaboration with AIT staff.

The access being offered includes:

- Preparatory work: installation of the devices, including electrical connections and specific instrumentation, preparation of a test procedure (if necessary) 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 and for test report preparation.