Smartsolar

Development of an Intelligent Management and Control System for Solar Heaters

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Scope of the project

The SmartSolar project aims to design and develop an integrated digital system that will include a smart device based on Internet of Things technology and Machine Learning techniques for monitoring and collecting data on the operation of solar water heaters. The smart metering device will be accompanied by a corresponding digital application for users, professionals, and energy networks.

Objectives of the project

✔ Techno-economic assessment of the implementation of services and technologies that will increase user participation in energy saving and increase the solar share in hot water production.

✔ Techno-economic assessment of the implementation of services and technologies to network operators and energy providers as measures for load reduction, network balancing, and integration of heat storage.

✔ Services to industry professionals to improve the performance and reliability of solar systems.

✔ Development of demand response forecasting tools, demand profiling, and smart metering.

✔ Collaboration with energy and service billing tools to balance grids by leveraging hot water storage.

✔ Participation in autonomous networks.

✔ Design demonstration actions to create a database on the potential for the provision and added value of installing smart metering and exploiting applications.

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Expected results

Users

✔ Information on water temperature, water heater status, and energy savings
✔ Water heater control and programming
✔ Remote control possibility
✔ Notifications in case of failure

Professionals

✔ Remote control possibility
✔ Improved system design based on temperature and flow data
✔ Energy measurement and proof of performance and behavior
✔ Development of standards and certification
✔ Statistics by geographical distribution & comparative performance

Production networks

✔ Reduction of installed power
✔ Energy saving
✔ Improved network design
✔ Thermal storage utilisation
✔ Grid balancing services
✔ Smart metering
✔ Selling energy and service instead of equipment
✔ Autonomous networks

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