

CoGrid. Coordinated Management, Smart Management

System for coordinating distributed consumption in electrical networks in order to smooth the aggregate consumption curve of the power grid



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Technological Offers type

[Technological solutions](#)

Research and innovation areas

- [Climate, Energy and Mobility](#)
- [Industry, Materials and Circular Economy](#)

ODS



Available from: 2020

Where?

Renewable Distributed Generation and Smart Control

Keywords: | [electricity](#) | [energy](#)

Brief description of the technology solution and the added value it provides

Electric power demand is estimated to increase at an average annual rate of 2.4% until 2020, evolution above the expected for the set of energies to the end user and GDP. A researchers' team of the GEDIRCI group from the ETSIT-UPM has developed a method and system for coordinating distributed consumption in electrical networks in order to smooth the aggregate consumption curve of the power grid, reducing the difference between its peaks and valleys. This coordination is done in a distributed and self-organized way without explicit communication between electrical installations, neither a control center nor a centralized agent, only using the grid aggregate consumption information or similar. CoGrid reduces the electrical infrastructure oversizing, enhances the profitability of investments in the electrical system, increases security and robustness and improves the integration of new technologies such as renewable energy.

Description of the technological base

This solution is a method of coordinating consumption in electricity grids that aims to smooth the aggregate consumption curve of the power grid, reducing the difference between its peaks and valleys.

This coordination is done in a distributed and self-organized way without explicit communication between electrical installations, neither a control center nor a centralized agent, only using the grid aggregate consumption information or similar. This way, electrical installations where CoGrid is implemented will have their demand planned and regulated to increase its energy efficiency.

“CoGrid smooths the aggregate consumption curve of the power grid reducing the difference between its peaks and valleys”

Market demands

Electricity market

- Electricity demand is growing again after several years of contraction. This reflects a better performance of the Spanish economy and could help to relieve the power system accounts.
- The increasing complexity and size of the electrical system brings a number of problems making essential the improvement of electricity demand management to be efficient and sustainable. CoGrid manages the electricity demand in smart grids with very low requirements in communications.
- The current levels of interconnection with Europe are only 4% of the installed power, far from the 10% target set by the EU

“CoGrid allows the customers consumption coordination and having a better understanding of their behavior, providing a safer access to the wholesale market when energy prices are lower”

Competitive advantages

- Reduces the electrical infrastructure oversizing and optimizes the use of local resources. According to estimates, with a penetration of 10% in the electrical system, annual average reductions of 10% of the difference between peak and valley can be reached.
- It allows a distributed control with greater robustness and reliability than centralized control. It also has low communication infrastructure requirements for network management, and increases security and helps ensure data privacy.
- It is a self-organized way of managing consumption.
- The consumption coordination of all the retail electric company customers provides a more stable and easier to predict situation for the subsequent purchases.
- It is a completely and easily scalable solution.

Development stage

- Concept
- Research
- **Lab prototype**
- Industrial prototype
- Production

Contact

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