

EU Commission supports Smart Rural Grid research & innovation

The new research project “Smart Rural Grid” sponsored by the EU Commission will cater for a more robust and resilient energy supply in rural districts. Local consumers and the environment will also be winners as the methods applied will help to curtail prices and encourage use of renewable energy production. The new technology and novel methods that will be developed should also enable the local distribution grid to efficiently embrace local, small scale energy production based on sun, wind and bio energy in an intelligent way.

A successful outcome of the project will allow grid owners to suspend investments in the traditional grid and make it more attractive for people to install sun panels and apply others small scale production equipment. Surplus energy fed into the net is likely to yield interesting economic returns for those who take part. Energy produced in one end of the village is likely to benefit others in the same community or in the overall energy market. The results developed will cater for the possibility of virtual power plants where small scale production is managed and aggregated in such a way that it makes an impact in relation to the market, the society and the environment.



“The key impacts of the project are directly related to significant cost and investment savings in rural electricity distribution. The Smart Rural Grid project will devote particular attention to substantial improvements in terms of efficiency, quality and network resilience”, says Santi Martínez Farrero, project leader and CEO of Estabanell Energia. “The project is supposed to introduce new innovative business models to support rural distribution grid operators and their future economic and industrial sustainability.”



“Smart Rural Grid” derives from the more general concept referred to as Smart Grid. A Smart Grid is usually referred to as an energy supply system that is managed by means of advanced information technology that allows improved control of both the supply and the demand side of the energy market. The concept implies that energy produced at different ends can be routed in multiple ways to the consumers depending on availability of supply and current demand. In contrast to the overall, high voltage system the local distribution net lacks sufficient transparency and control to make this possible. This challenge is especially pronounced in rural areas.

A smarter grid will make the distribution grid more stable and reliable. The technology applied can help to prevent failures and loss of electricity and to make it easier to find and repair failures when parts of the distribution grid suffer outage. Energy from a disparate set of sources can be routed and rerouted to where it is needed during the flash of a second. In urban areas, the distribution grid usually has several alternative ways to route electricity from the producers to the consumers in private homes, industries, hospitals, and others. So if one part of the distribution grid goes down, electricity can be routed another way, so the consumer will not be affected. This is the same way as the internet is built in a very reliable way.

The Smart Rural Grid project focuses at challenges that are specific for rural areas with few alternative distribution routes for electricity. Therefore, smart rural distribution grids have to be designed, planned, maintained and – if necessary - repaired in different ways than smart urban distribution grids.

“By exploring the convergence between electricity and telecom networks”, project leader Santi Martínez continues, “the project is focused at enabling distribution grid operators to operate more efficiently, to integrate local renewable energy production and to interconnect local electricity producers who also consume electricity, so called electricity prosumers. The project will also explore how the supply of electricity can be increased and the quality of supply be guaranteed when part of the grid loses connection to the central grid, thus forming an “electricity island”. Any electricity distribution grid can only work properly when there is a balance of production and consumption at any time. This represents a special challenge for electricity islands, because balancing from the central grid cannot be used. So the use of local and distributed balancing instruments has to be explored, Combined Heat and Power generation units connected to grid being one of those. The project will also

produce and deploy new industrial products, systems and devices, and create new services for electricity distribution and network management and control”, CEO Santi Martínez concludes.

The EU research project Smart Rural Grid started with a kick-off meeting in Granollers, Spain, February 4th, 2014. The project is funded by the 7th Framework Programme for Research, technological Development and Demonstration, by a total contribution of EUR 3,239,539 over 3 years. The project will invite a group of experts to join a Technical Advisory Group which will have its first meeting May 12th in Brussels.



Lead partner of the project consortium is the Spanish energy company “Estabanell y Pahisa Energia”, and the consortium consists of:

- CITCEA-UPC, Universitat Politècnica de Catalunya (ES)
- ZIV Communications (ES)
- Xarxa Oberta de Comunicació i Tecnologia de Catalunya SA (ES)
- KISTERS AG (DE)
- Stadtwerke Rosenheim Netze GmbH (DE)
- CG Power Systems Ireland Ltd. (IR)
- Smart Innovation Østfold (NO)

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