

Special Session

MICROGRIDS AND VPPS FOR SMART ENERGY COMMUNITIES

Organised by:

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Smart Grid network intelligently integrates the actions of all actors connected to it, such as generators, suppliers, aggregators, consumers, in order to efficiently deliver sustainable, economic and secure electricity supplies. It uses information and communication technology on top of the electric network to improve the reliability, security, and efficiency (both economic and energy) of the electric system. To achieve this, it is also allowing vast integration of sensors and smart metering for collecting data across the grid. While collecting and transmitting data across the grid, it accepts integration of distributed energy resources (DER) and storage systems at any point of the network, especially integration at the consumer/prosumer level. Thus it creates the opportunity for any consumer/prosumer on the grid to become an energy/power supplier and take part in energy trading mechanism. This is the key for consumer to be converted into an active energy citizen. Research on empowering this energy citizens are carrying out by introducing the ideas of smart buildings, smart energy communities, smart cities etc to achieve the target of decarbonizing smart grid. EU commission is more strongly focusing in this aspect. EU proposes new rules for consumer centered clean energy transition where consumers are active and central players on the energy market of the future. Consumers/prosumers will have a better choice of supply, possibility to produce and sell their own electricity with real time respond to price signals. Hence, for the better operation and management, consumers/prosumers with multiple DERs and/or storage systems in the distribution network can be coordinated to form an integrated energy system (IES), such as, microgrids and virtual power plants (VPP). Local consumers/prosumers and communities can be engaged with these microgrids and VPPs development with the aim to empower energy citizen or uplift smart energy communities to become “zero net energy” or “energy plus” communities.

This special session is therefore focused on the research, development and demonstration of microgrids and VPPs for the smart energy communities. Scope of this session covers:

- Innovative design and control of community based microgrids and VPPs
- Integrated energy systems towards zero net energy community
- Power quality and energy management
- Energy trading mechanism,
- Demand flexibility and ancillary services,
- New business model to empower energy citizens.

Submission of papers:

Deadline: 31 May 2018

Submit the paper at: <http://soe.northumbria.ac.uk/efea2018/index.html>