

Smart grids

- Smart Grid introduction and definition
- Smart grid - essential systems

Smart grid introduction

- Significantly broader term than smart metering
 - Smart metering is just a basic functionality within the smart grid
- Features of smart grid
 - can **automatically reuse** gathered information
 - provides services for **reliability, survivability, and responsiveness**
- Aim is **total automation** of the electricity distribution network.
- The European Union Commission Task Force for Smart Grids definition:
 - A Smart Grid is an electricity network that can **cost efficiently integrate** the behaviour and actions of **all users** connected to it – generators, consumers and those that do both – in order to ensure economically efficient, sustainable power system with **low losses and high levels of quality and security** of supply and safety.

Smart grid - essential systems

- Generation management system
- Transmission management system
- Distribution management systems
- Aggregated prosumers management system
- DER operation systems
- **Smart Metering systems**
 - AMI system
 - Metering-related back office system
- Micro-grid systems
- Marketplace systems and trading systems
- E-mobility systems
- Administration systems