EcoGrid EU

Large scale Smart Grids demonstration of real time market-based integration of DER and DR

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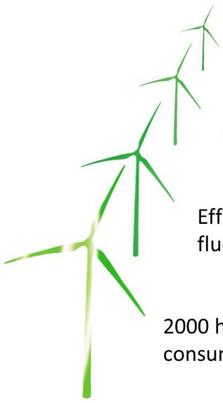
EcoGrid EU
The Power System of Tomorrow



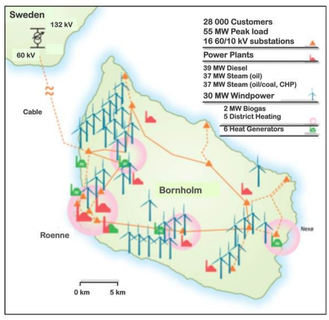
A real world demonstration on Bornholm

A prototype for a European Smart Grid market

Efficient management of 50 % wind power and other fluctuating renewable energy generation

2000 households will by means of a more flexible consumption participate in the demonstration

Bornholm is a Part of the Nordic Power System



28 000 Customers • Wind Power 36 MW • CHP (biomass) 16 MW • PV 2.5 MW • Biogas Plant 2 MW • 5 District Heating Plants

A Strong EU Partnership Completes the Puzzle

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2000 Participating Customers in the Demonstration

Control Group

- 200 customers with a smart meter
- No access to specific information or "smart" equipment

Manual Control Households

- 500 households with a smart meter
- Receiving market price information
- Must move their energy consumption by themselves

Households with Automatic Control

- 700 automated households with a smart meter
- Connected appliances responding to price signals

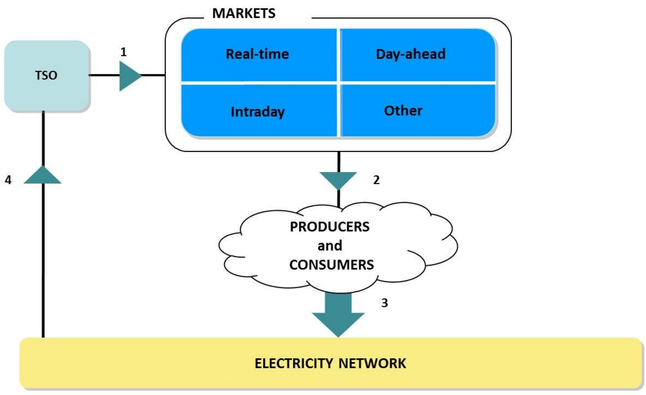
Households with Automatic Control connected to Aggregator

- 500 automated households with a smart meter
- Multiple connected appliances – all responsive to price signals
- All houses have heat pumps, electric heating, EVs or PVs

Smart Businesses

- 100 commercial/ public/industry customers with a smart meter
- Including small business units and the public customer
- Several connected smart appliances

The Bidless Real-time Market



The process of the bidless real-time market concept:

1. The TSO detects a need for correcting the system balance, and calculates the price that will re-establish equilibrium
2. The price is published and retrieved by market actors
3. Production and consumption is adjusted accordingly
4. The TSO monitors the impact to verify that equilibrium has been established

This process is repeated every 5 minutes