

ISWA'15
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Preparing waste to energy plants for the future energy market

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Understanding Electricity Markets



Energy Efficiency obligations

Gate fees



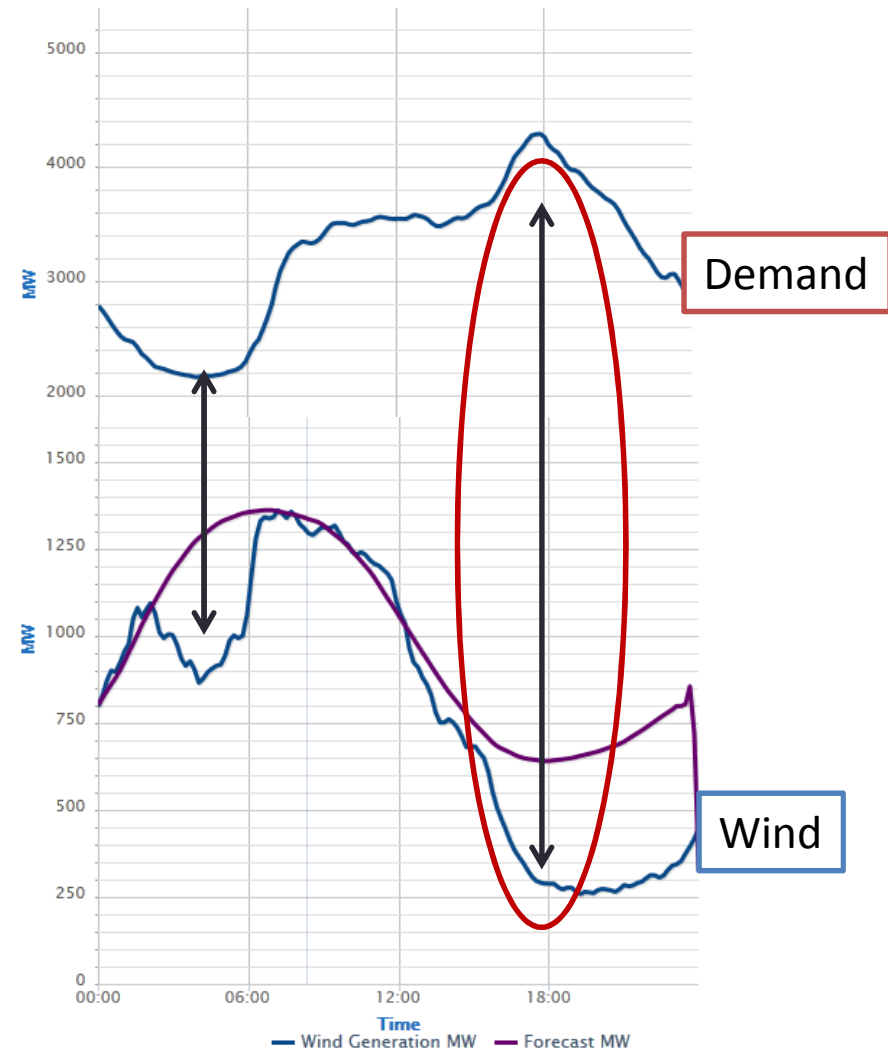
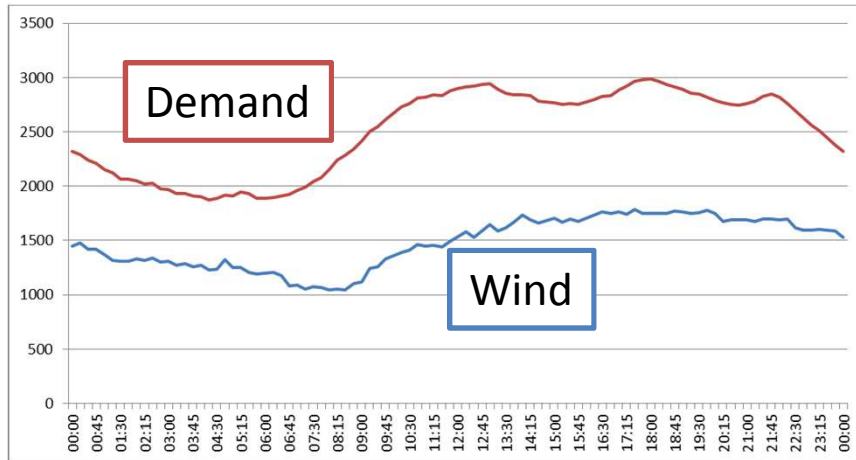
Changing energy consumption

Volatile international energy markets

Changing market structures

Variable renewable generation

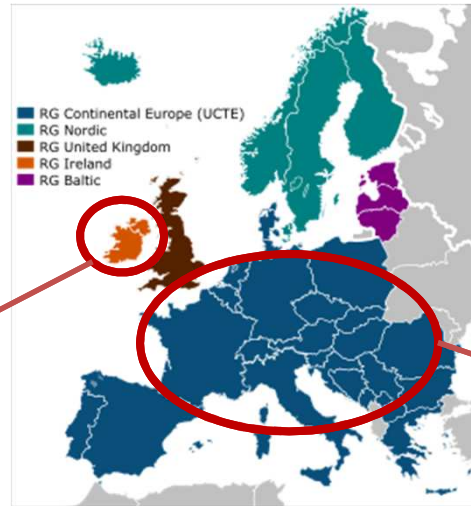
Variable Renewables



Variable renewable generation

- Curtailment of predictable generators
- Higher operating standards

All-Island Market: Small & isolated

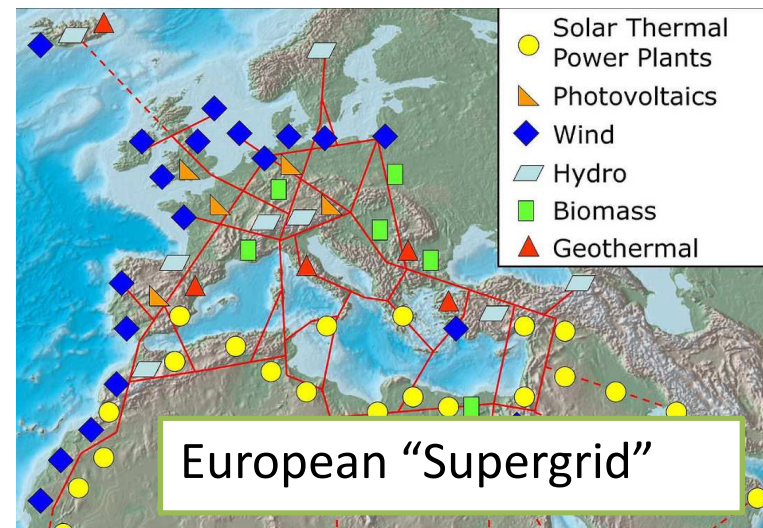
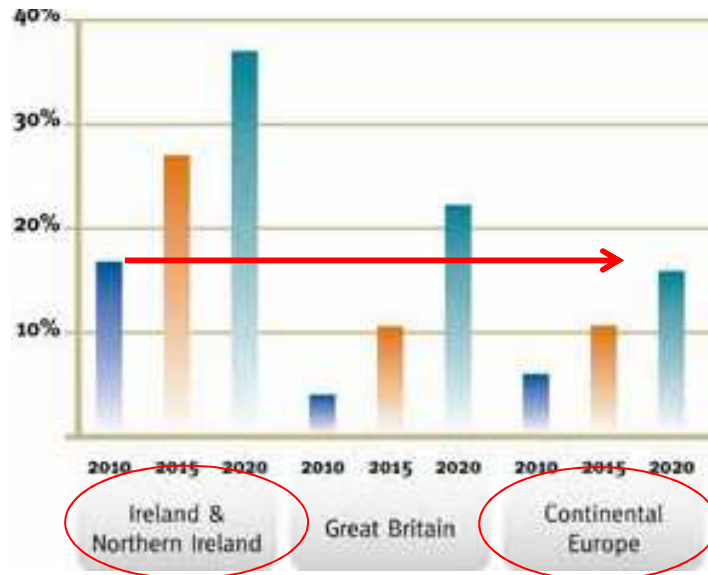


- 6.6GW peak demand
- 0.75GW interconnection
- 3GW wind

- Largest synchronous grid in world
- Over 400M customers / 24 countries
- 667 GW capacity, 80 GW margin.



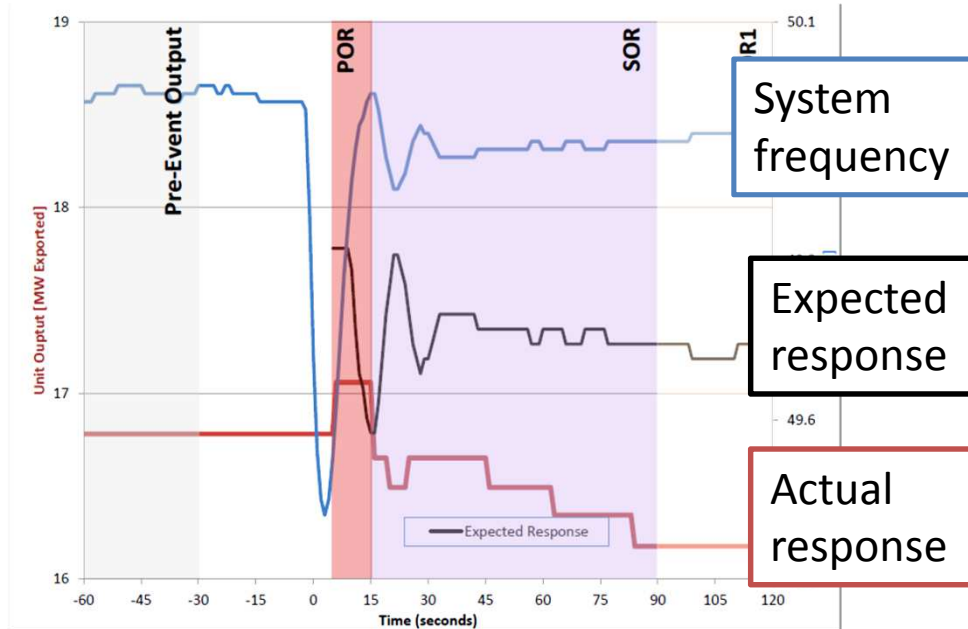
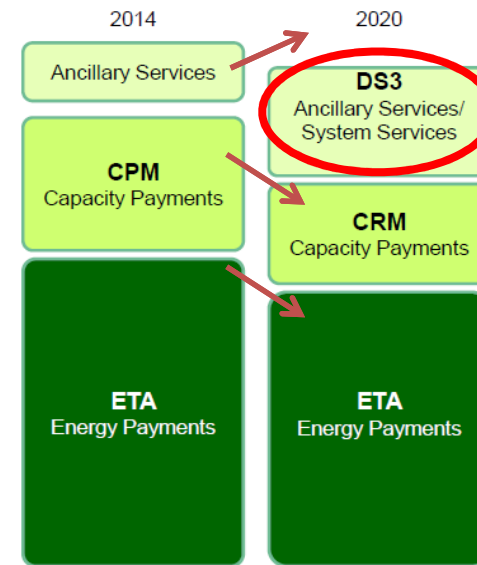
Irish Experience: a test bed for Europe



- Wind / interconnector "inertia-less"
- System operators
 - Strengthen network, forecasting
 - Operational behaviour → scheduling, curtailment, plant capability

System Services Challenge

- Frequency response, ramping services and voltage control
- Increasingly important source of revenue



- WtE characteristics:
 - Continuous operation
 - Pressure control
- Limited ability to provide sudden injections of power

System Services Opportunity

- Always in “hot” condition
- Wide operational range
 - Very low minimum generation
 - Stay “on the bars” during curtailment
 - High quality ramping



- → Means spilling steam!
 - Impacts on efficiency / R1?
 - Storage opportunity?
 - Flexible steam export?

Indaver, leading the field in sustainable waste management

