

Demand Response - An introduction and client perspective.



Energy Services
Your Energy Partner

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Introduction & What We Do



Founded in 2000



Offices in Cork & Dubai



Supporting Clients in Ireland, Europe, Middle East & Asia



Supply Side Services, Markets & Procurement, Demand Side Services

Presentation Overview



Demand Response – Definition



The USA Federal Energy Regulatory Commission (FERC) defines DR as; *“Changes in electric usage by demand side resources from their normal consumption patterns in response to changes in the price of electricity over time, or to incentive payments designed to induce lower electricity use at times of high wholesale market prices or when system reliability is jeopardised...”*

...balance supply and demand.

Demand Response – Purpose

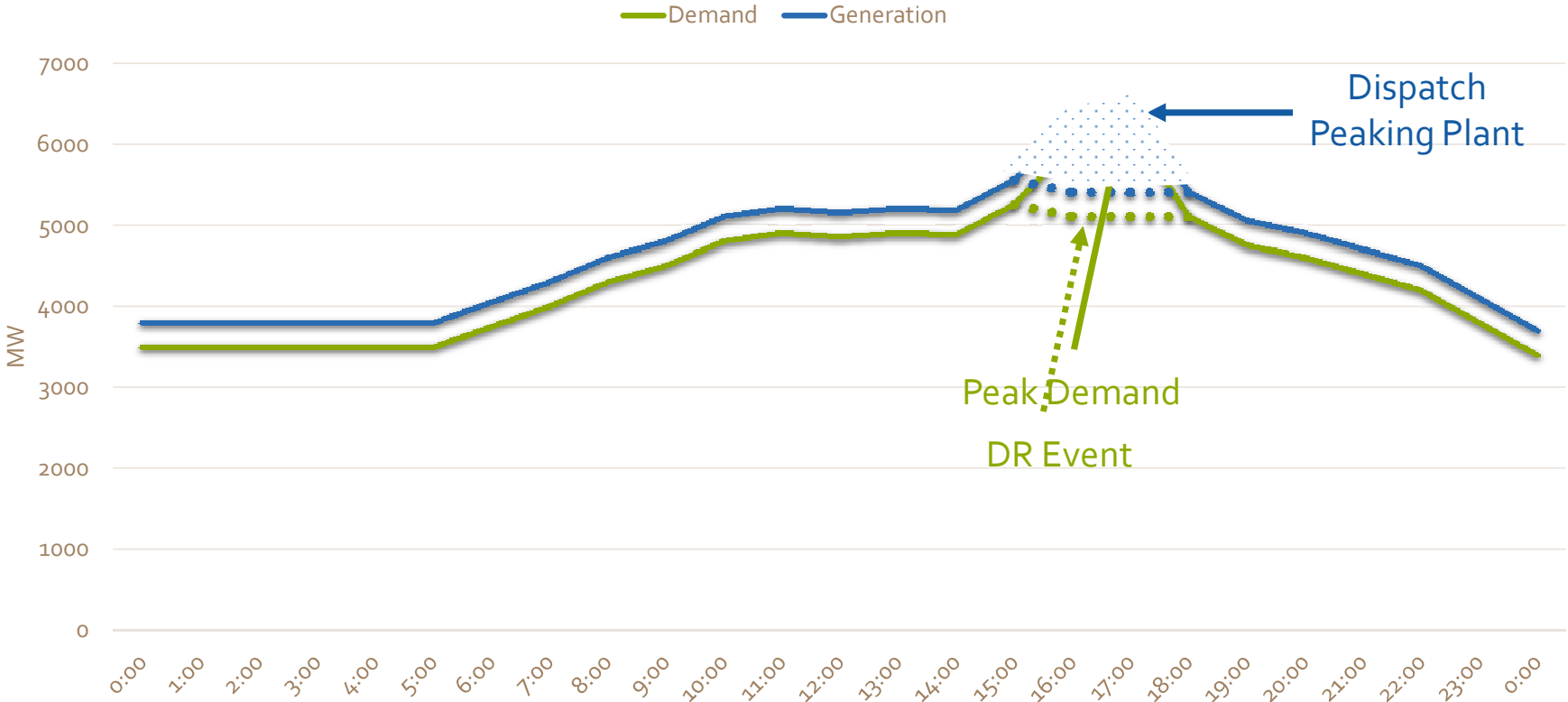


FLEXIBILITY...

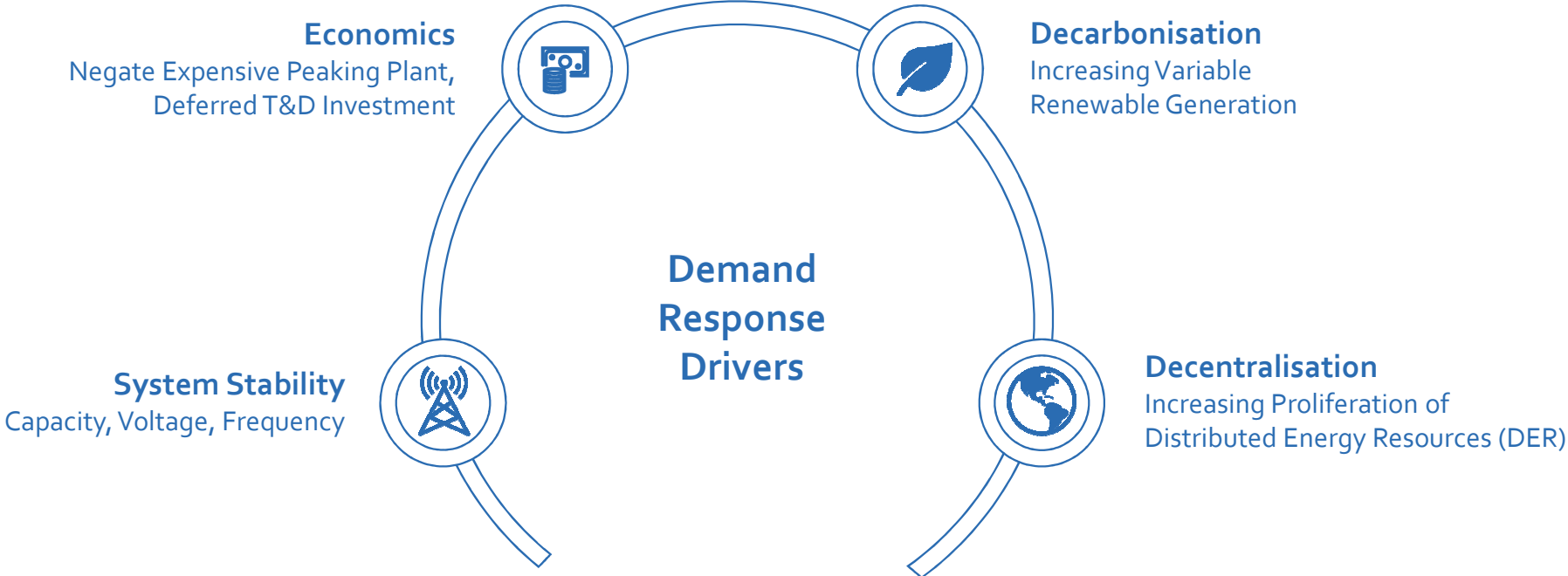
Demand Response Generation Flexibility



System Demand & Generation



Demand Response – Key Drivers



Moving from traditional linear 1 way power flow to multidirectional, digitized & dynamic systems.

Ireland Perspective



DS3 – Delivering a secure, sustainable electricity system.

World Leading Target for SNSP – 75%, currently 50-60%.

Ireland DR Schemes – Some Detail



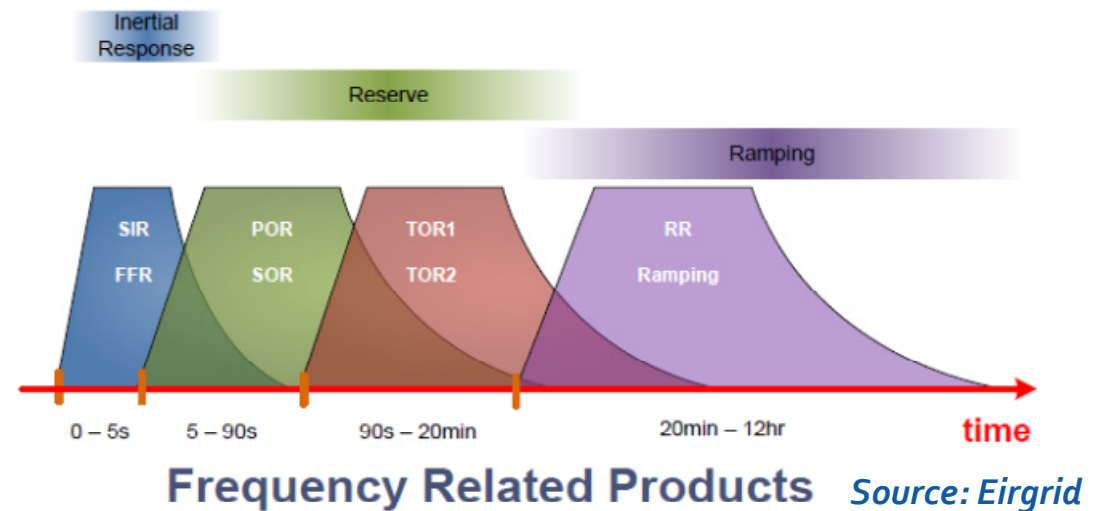
Demand Side Unit (DSU)

- One or more demand sites.
- DSU Aggregators act as intermediaries – virtual power plants.
- Dispatched by TSO as if generator.
- Demand reduction capacity of at least 4MW.
- Capacity payments, currently c.€42k/MW/Yr
- Least technically challenging scheme.

Ireland DR Schemes – Some Detail

System Services

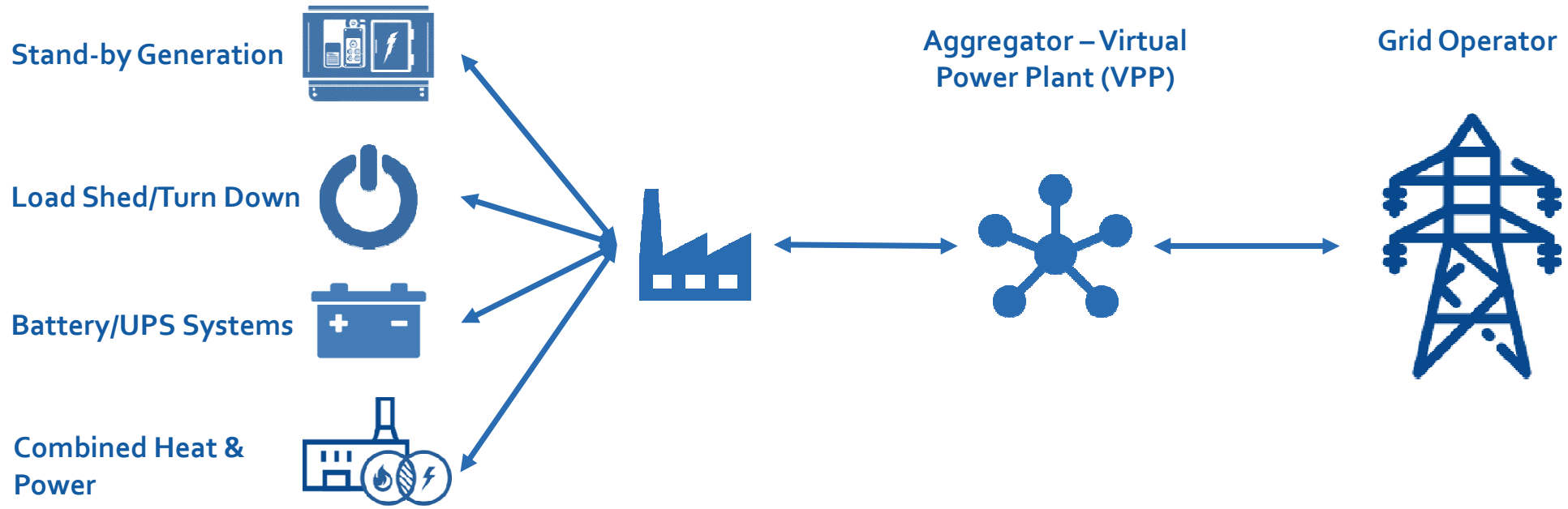
- Secure & efficient system operation with increasing renewable generation.
- Suite of services with differing technical characteristics & multiple revenue streams.
- More technically challenging due to dynamic & fast acting nature.



Client Perspective – Capturing Opportunity



DSU, System Services – Why Participate?
Unlock untapped revenue streams, support decarbonisation of local/national electricity systems



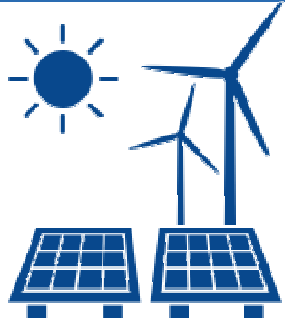
Key Considerations



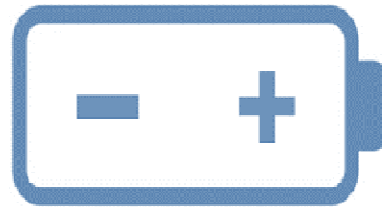
- Limitations – site demand/MIC or MEC?
- Do I have underutilised onsite generation or other assets?
- Synchronised or AMF?
- Do I have large loads?
- To what extent can I shed load without disrupting critical operations?
- Load/Generation characteristics – how quickly can assets respond?

Demand Response – Future Trends

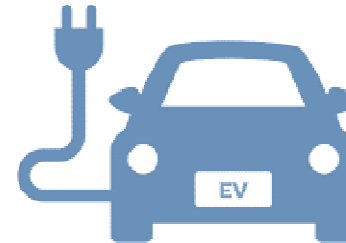
Converging Technology, Policy & Regulation...Multidirectional Power Flow on Integrated Digitised Systems where Flexibility is Key



*Increasing Renewables.
Integrated DER/Microgrid*



Battery Storage



eMobility/Vehicle 2 Grid



*Market Transformation/TOU
Load Shifting (iSEM)*



Smart Home



Internet of Things

Topical Example – Time Of Use iSEM



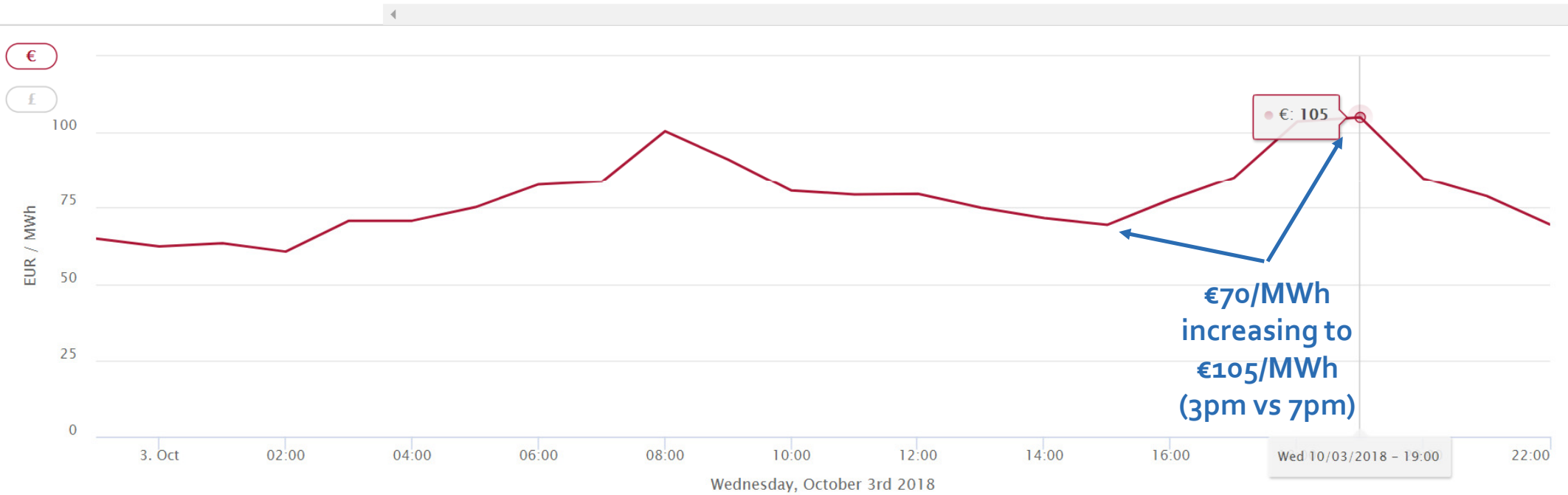
Market Results

DAY-AHEAD

INTRADAY AUCTION 1

INTRADAY AUCTION 2

INTRADAY AUCTION 3



How We Help

"We sit on your side of the table, supporting you from concept to operation to navigate the complexities and unlock hidden value from your assets."

Load Profile Modelling



Asset & Resource Analysis



Technical & Operational Constraints Analysis



Asset Utilisation/Load Adjustment Strategy



Procurement (Aggregator)



Commercial Modelling



Project Management





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