

Challenges of Dispatch Down

IWEA 2019 Autumn Conference
24th October 2019



Presentation Overview

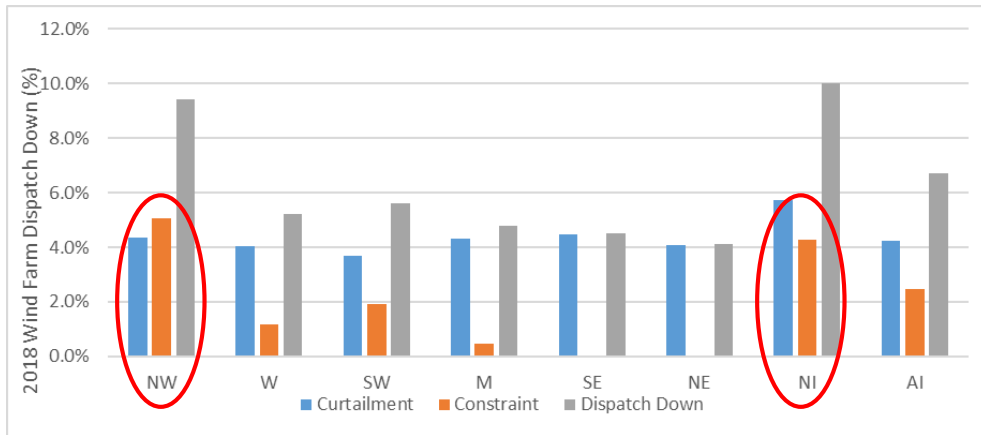
- IWEA Dispatch Down Working Group
- Curtailment in 2030



Dispatch Down in Numbers

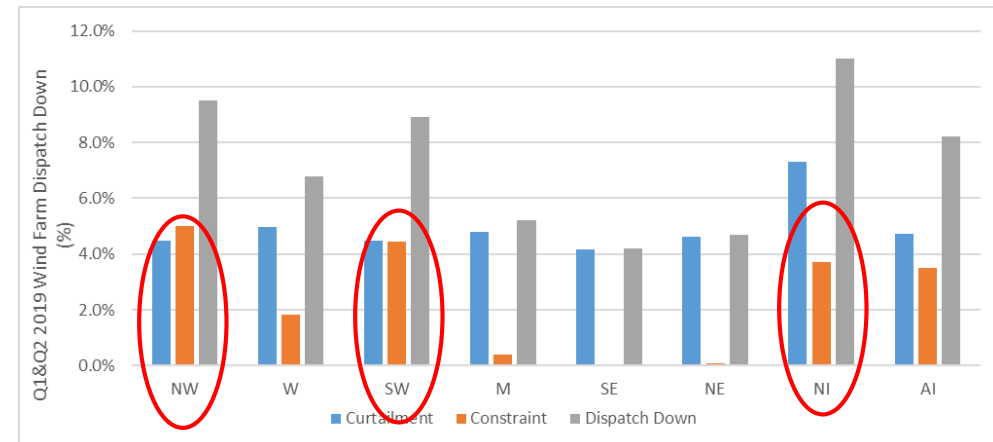
2018

Dispatch Down Energy	700 GWh
Increased emission	350 kt CO ²
% of Total Energy/Emissions	2%
Lost Revenue	€50m
Curtailment %	4.2%
Constraint %	2.5%



Q1/Q2 2019

Dispatch Down Energy	475 GWh
Increased emission	230 kt CO ²
% of Total Energy/Emissions	2.75%
Lost Revenue	€37m
Curtailment %	4.7%
Constraint %	3.5%



IWEA Dispatch Down Working Group

- Established by IWEA in 2019 to address members concerns on growing levels of constraint and curtailment
- Group manages c.3,800 MW (80%) of wind generation



Companies

Energia

Bord na Mona

Greencoat

Brookfield

Enerco

SSE

NTR

ABO Wind

ESB Wind Development

Statkraft

Energy Pro

RES Group

 **MullanGrid**
CONSULTING

- Now we need an action plan for the working group

Working Group Goals

**Minimise
Curtailment**

**Minimise
Constraints**

**Minimise
Outages**

**Monitoring
& Analysis**

Lobbying

**Provision of new
services**

Compensation

Working Group Action Plan

- Ongoing Tasks
- Supporting other working groups:
- Top new objectives

Working Group Action Plan

- Ongoing Tasks
 - Supporting delivery of EirGrid's DS3 programme
 - Analysis of dispatch down energy, CO² and revenue
 - Regularly meetings/workshops with EirGrid & SONI
 - Using all opportunities to raise dispatch down priorities
 - Managing and administering the working group
- Supporting other working groups:
- Top new objectives

Working Group Action Plan

- Ongoing Tasks
- Supporting other working groups:
 - Grid Development Working Group
 - P5 Working Group
 - Clean Energy Package Working Group
- Top new objectives

Working Group Action Plan - Top New Objectives

- Ongoing Tasks
- Supporting other working groups:
- Top new objectives:
 - Review effectiveness of interconnectors during curtailment events
 - Review potential to increase the export capacity on the Moyle interconnector
 - Review NCC resourcing and tools for managing dispatch down
 - Review min gen levels of existing conventional plant.
 - Input into regulators auditing of SOs dispatch down operation
 - Industry analysis to calculate outages periods in Ire/NI
 - Review EirGrid's quarterly dispatch down reports.
 - Complete analysis on allocation of dispatch down between windfarms

Minimise Curtailment - Example

Curtailment Events		Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Oct - Jun
	Curtailment Events(nr.)	6	15	19	9	23	16	7	6	6	107
	EWIC Avg Net (MW)	-273	-218	-180	-411	-290	-368	-108	-92	-406	-261
	EWIC Avg Net (%)	-52%	-41%	-34%	-1	-1	-1	0	0	-1	-49%
	Moyle Avg Net (MW)	-30	-54	18	-96	-89	-29	-72	-117	-133	-67
	Moyle Avg Net (%)	-10%	-18%	6%	-19%	-18%	-6%	-14%	-23%	-27%	-25%

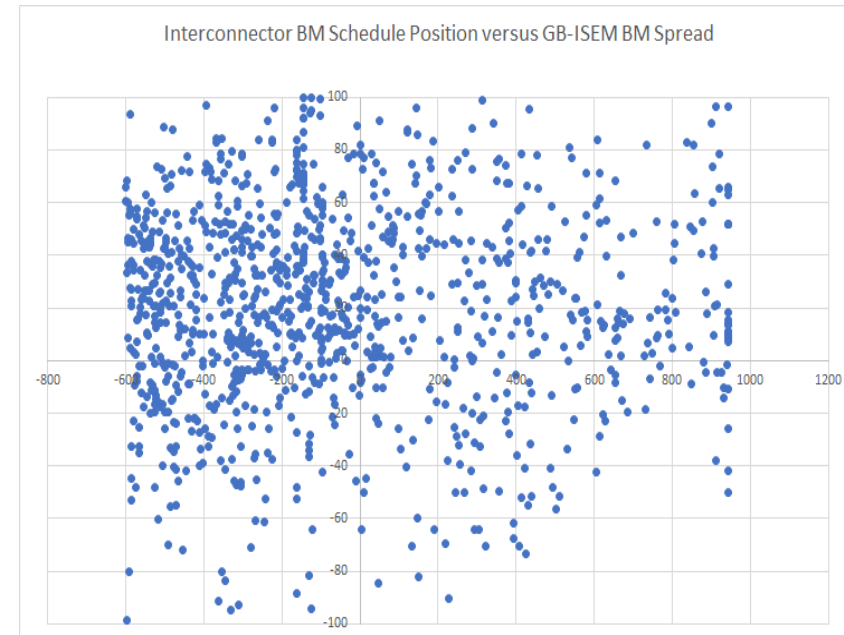
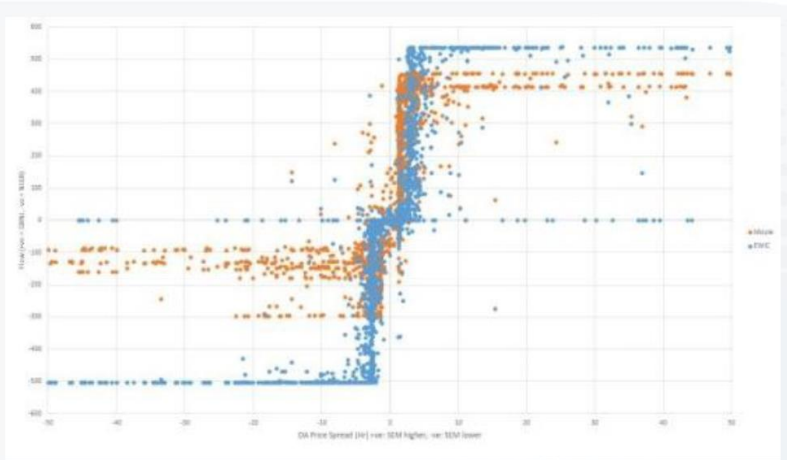
Positive figures represent imports, Negative figures represent exports

EWIC Capacity=530MW

Moyle Capacity=300MW(2018),500MW(2019)

Interconnector Flows

- X-axis DAM prices SEM and GB
RHS SEM>GB
so Import
- Y-axis Vol and Flow
Topside Import
GB to SEM



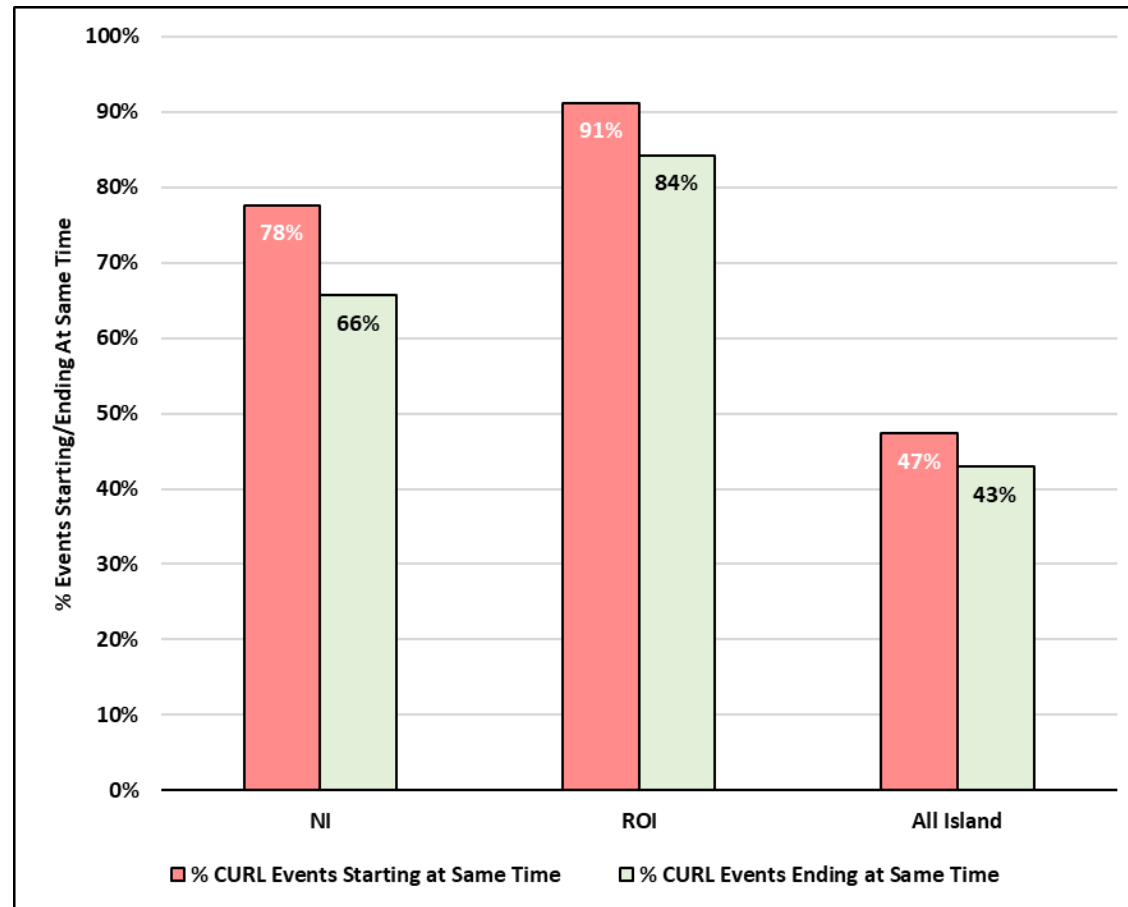
- Interconnector flow was in the opposite direction to the price signal in the balancing markets 45% of the time
- Recommend EirGrid carry out increased counter trading to minimise renewable curtailment

Working Group Action Plan - Top New Objectives

- Ongoing Tasks
- Supporting other working groups:
- Top new objectives:
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Allocation of Curtailment - Example

- Working group identified that dispatched down in NI was being incorrectly being tagged as curtailment rather than constraints
- Outcome will be greater constraint compensation for NI windfarms



Managing Curtailment in 2030

Paul Blount - James Carton - Conor Forde - Peter Lynn - Rory Mullan



Proposed Measures: 2030 High RES-E System

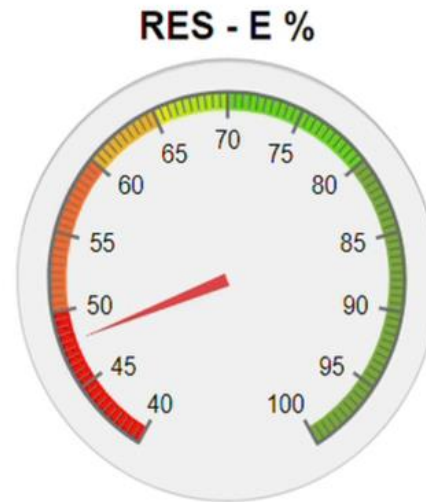
Measure	Description	2030
Relieve operational constraints	-Min Gen	700 MW
	-SNSP	90%
Interconnection*	-Celtic IC	700 MW
	-Greenlink IC	500 MW
	-EWIC	500 MW
	-MOYLE	80 MW
	-Additional Capacity	<u>240 MW</u> 2020 MW
Energy storage	-Turlough Hill	219 MW
Increased wind capacity factor	-Blended Onshore & Offshore Fleet Capacity Factor	38%
Diversification of technologies	-Solar Capacity	7000 MW
Demand side Management	-% EV Demand Flexible	60%
	-% Background Demand Flexible	15%
	-% Heat Pump Demand Flexible	100%

* Interconnector Availability Assumed to be 90%

Proposals for high RES-E at low curtailment levels in 2030

Curtailment Mitigation Measures

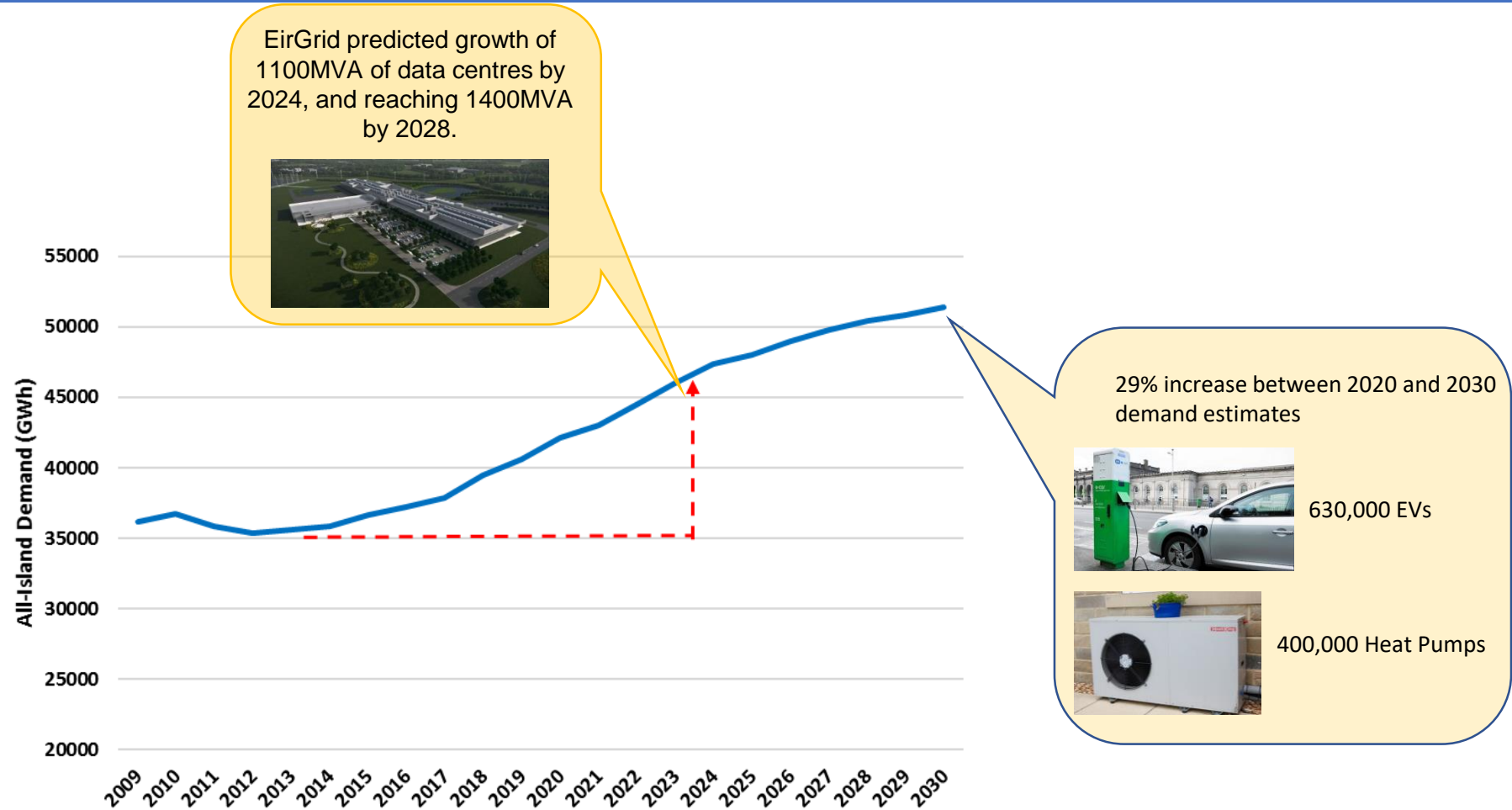
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2. Provide Additional IC Capacity
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Curtailment %

5

Increasing Demand



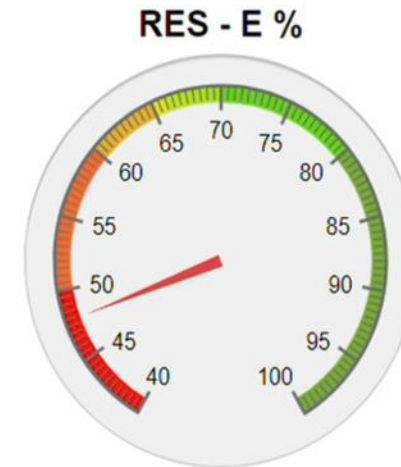
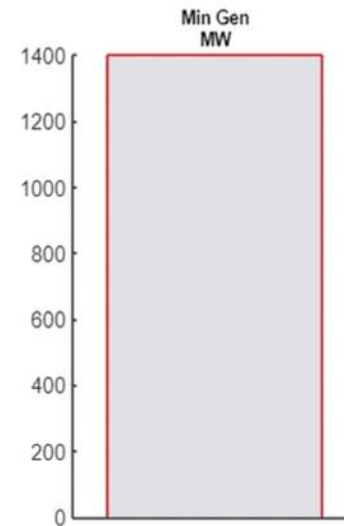
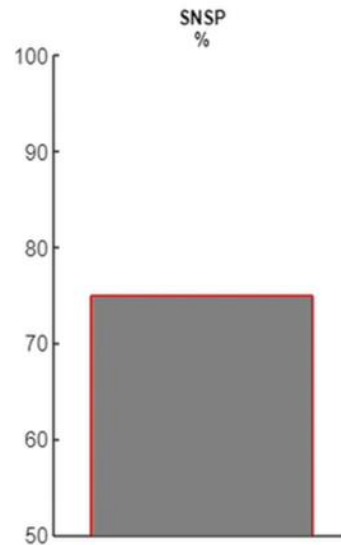
Source: Demand between 2018 and 2029 sourced from EirGrid's median demand forecasts from the 2019 Generation Capacity Statement

* Electric vehicle and heat pump assumptions from IWEA 70 by 30 Study

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Curtailment Mitigation Measures

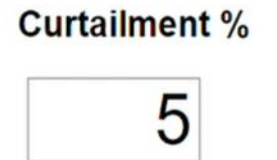
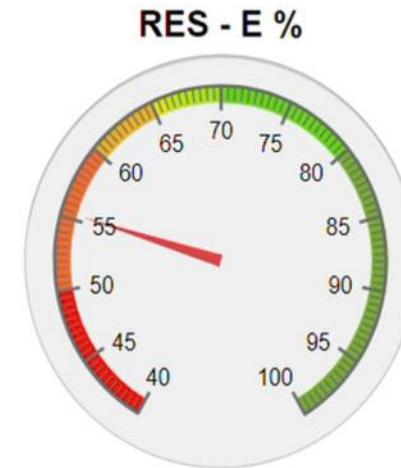
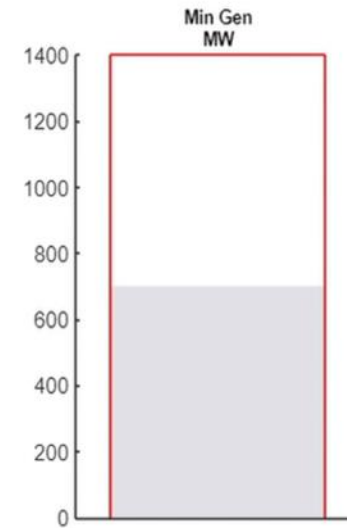
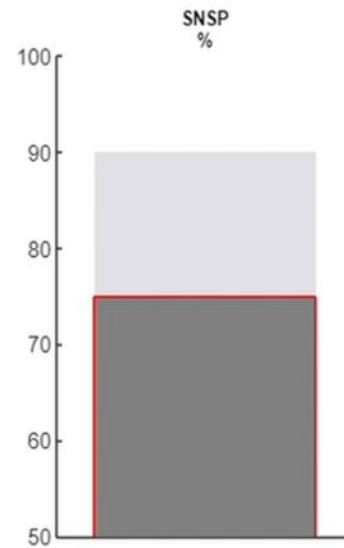
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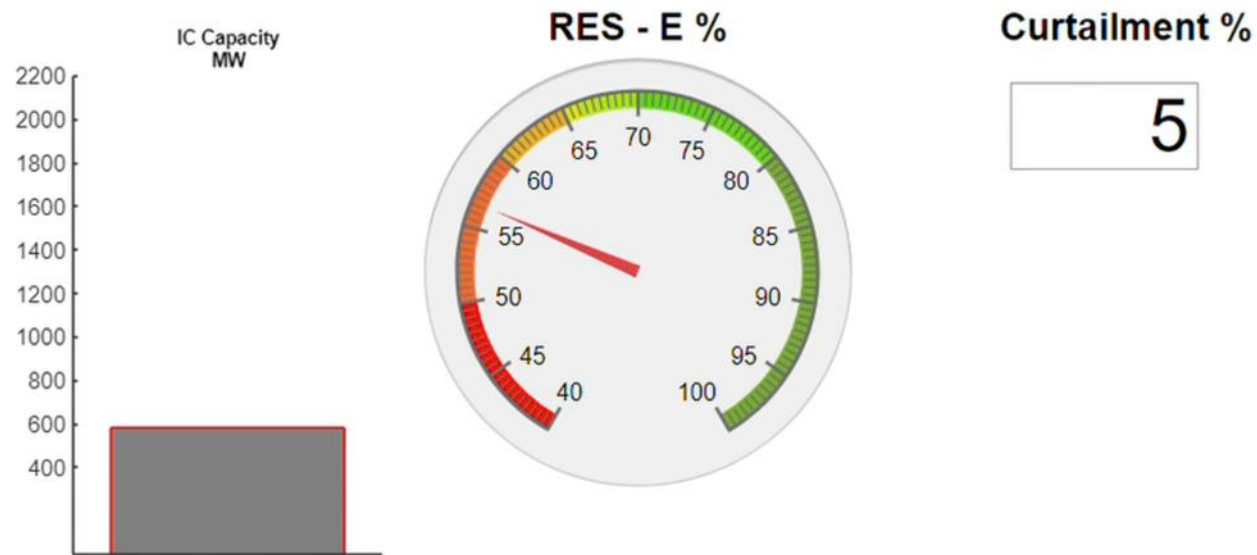
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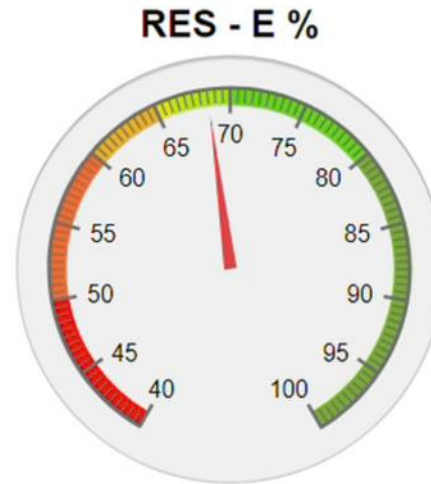
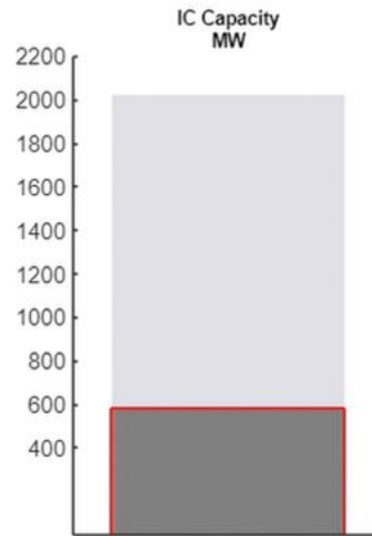
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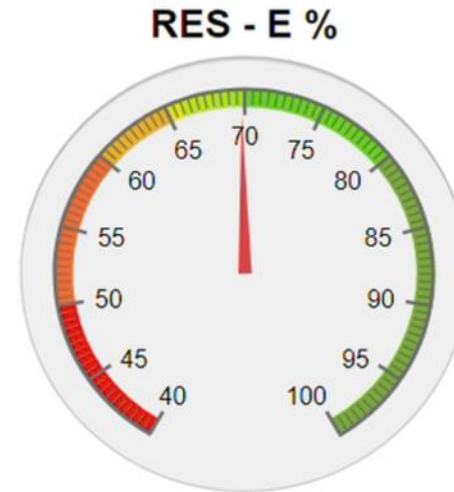
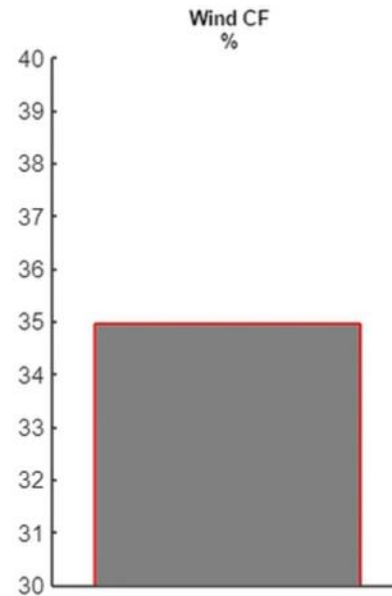
Curtailment %

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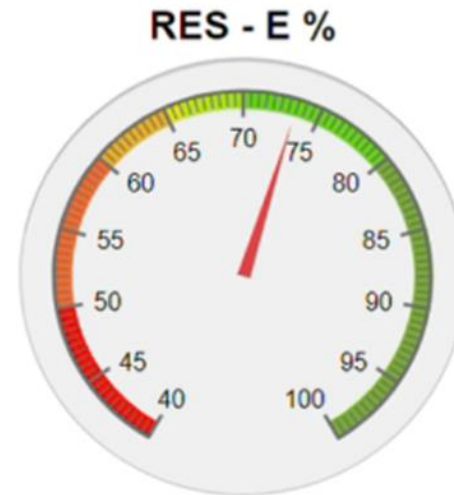
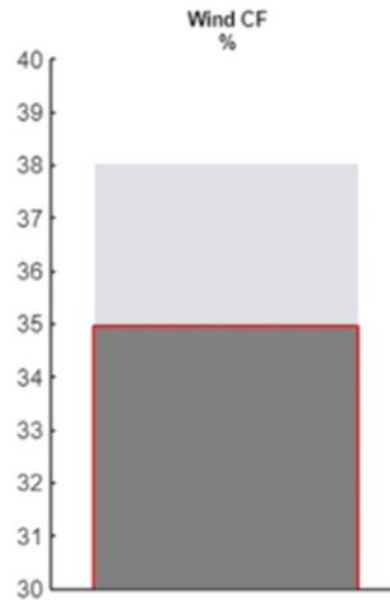
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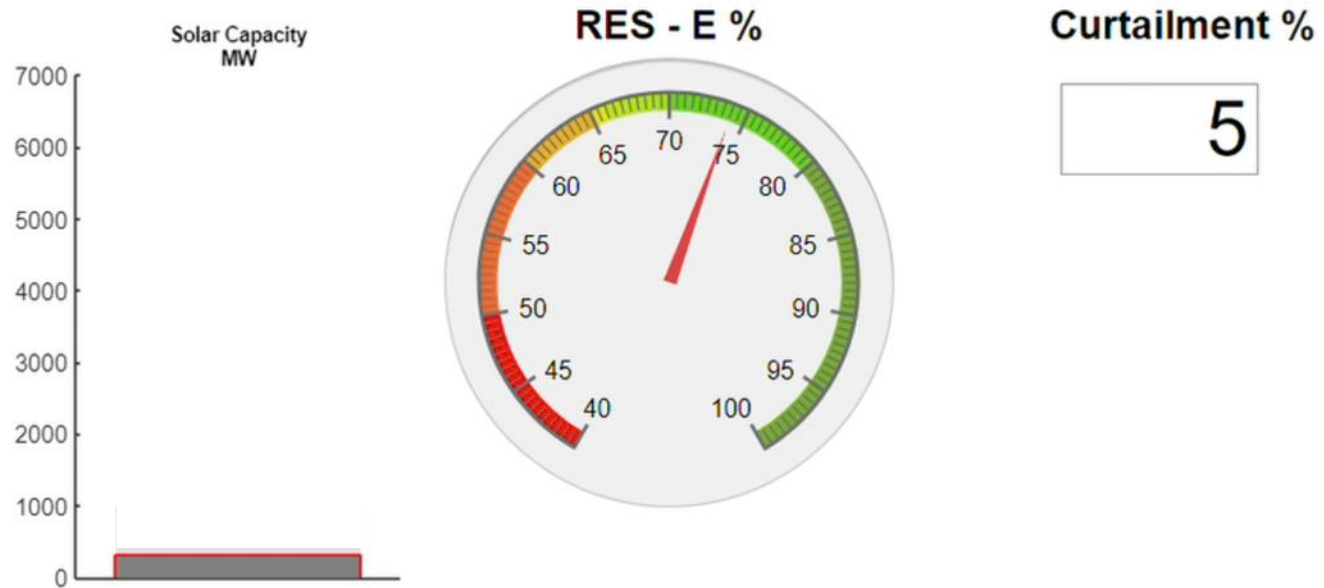
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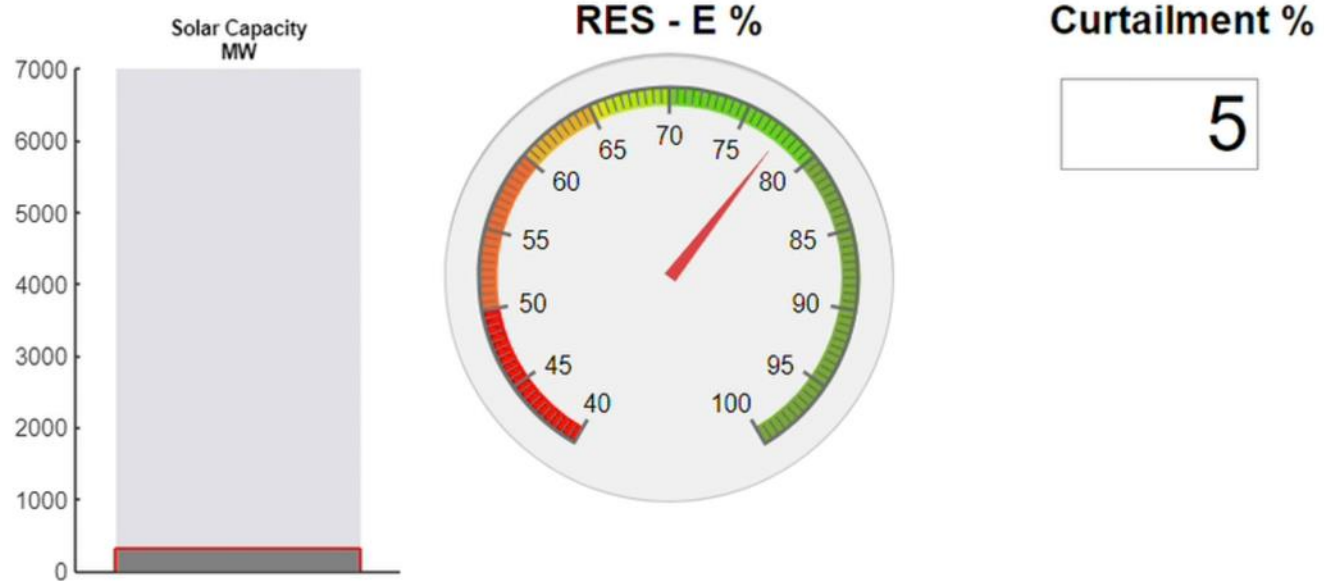
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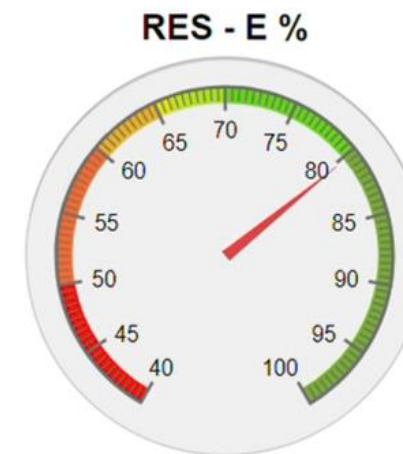
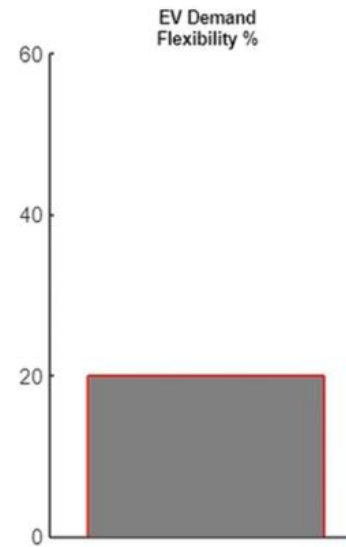
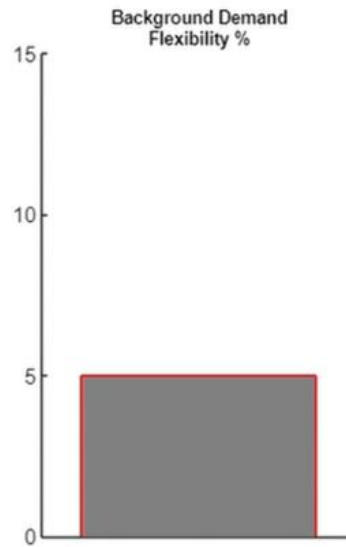
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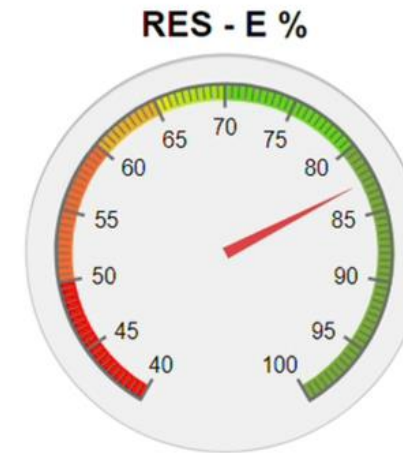
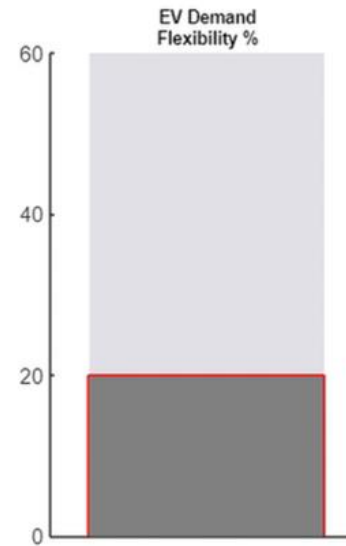
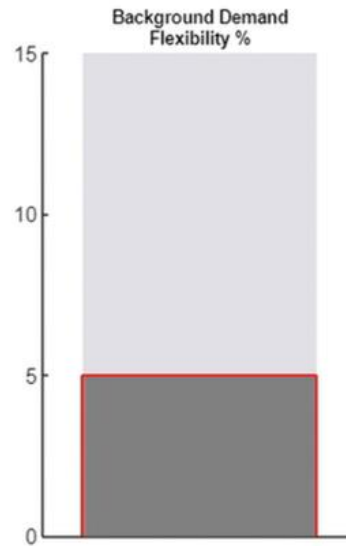
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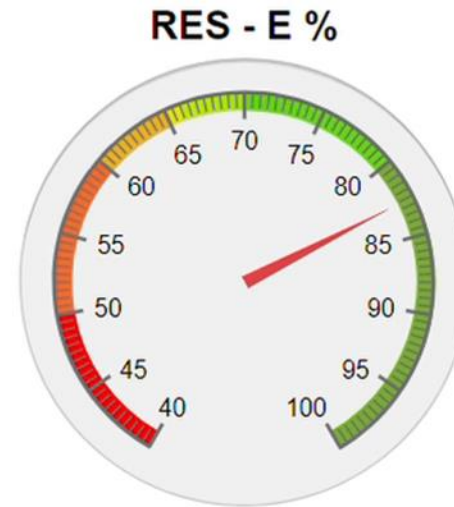
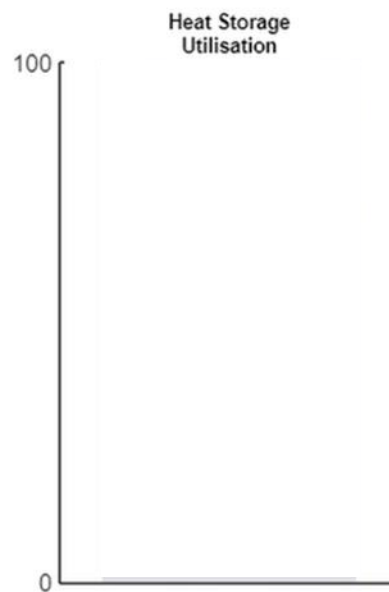
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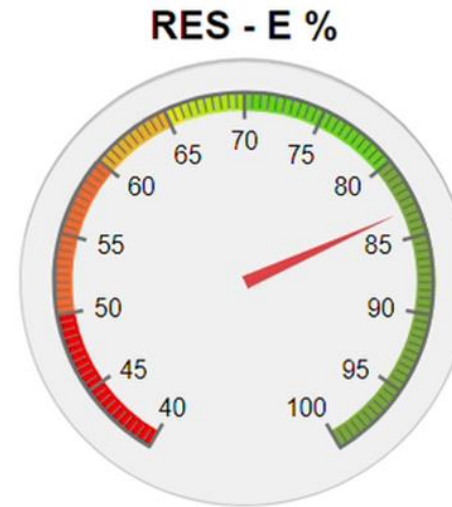
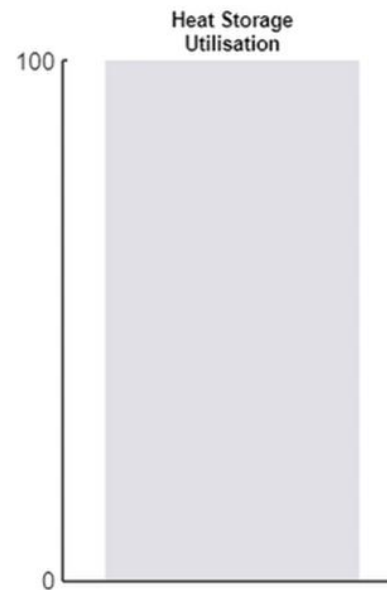
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Curtailment %

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Summary

- IWEA working group now up and running with plans to minimise dispatch down
- Minimising curtailment in 2030 is challenging but achievable

