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A vision for Ireland's power system in 2035

Paul Deane|
Senior Lecturer in Clean Energy Futures

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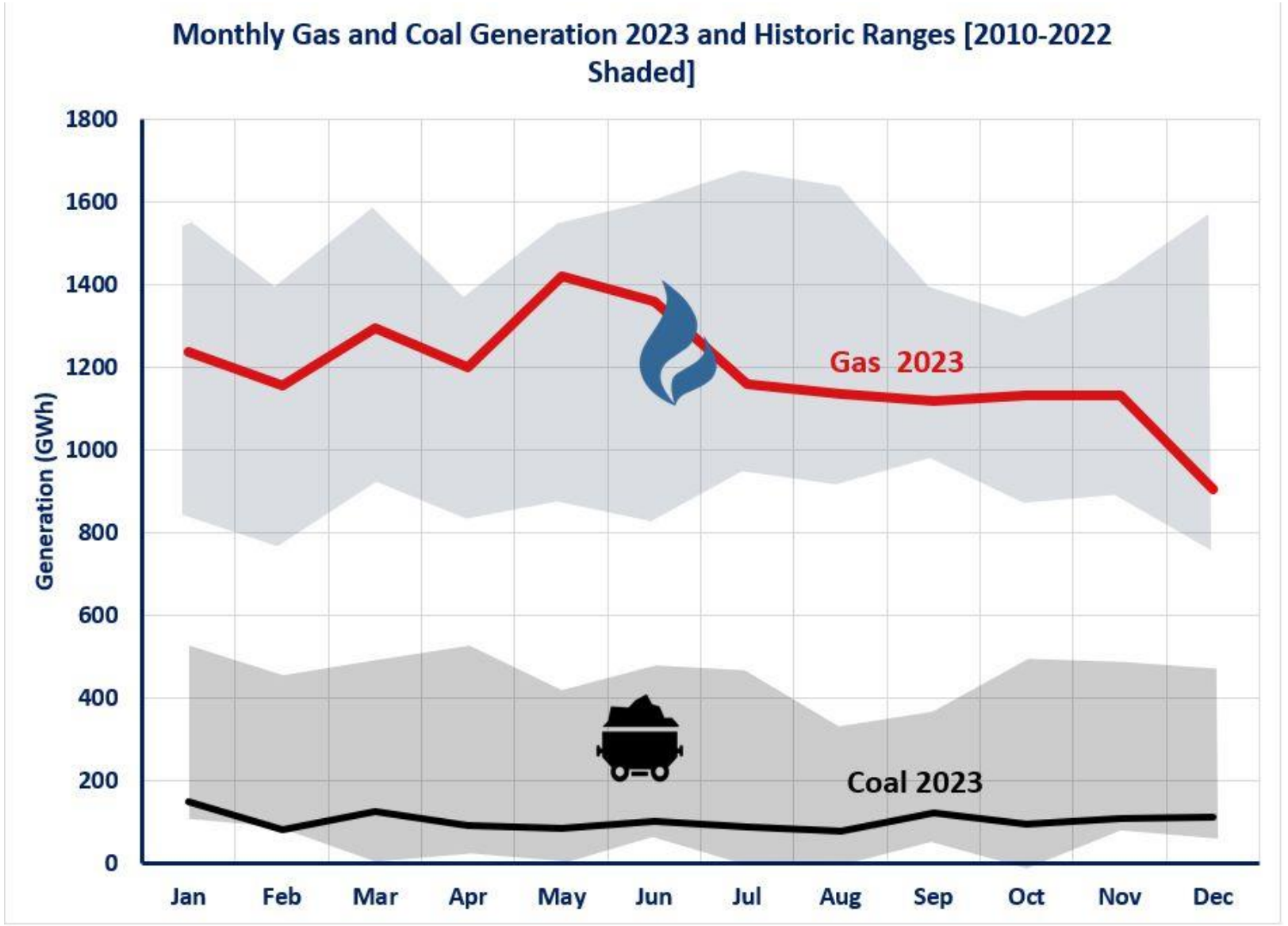
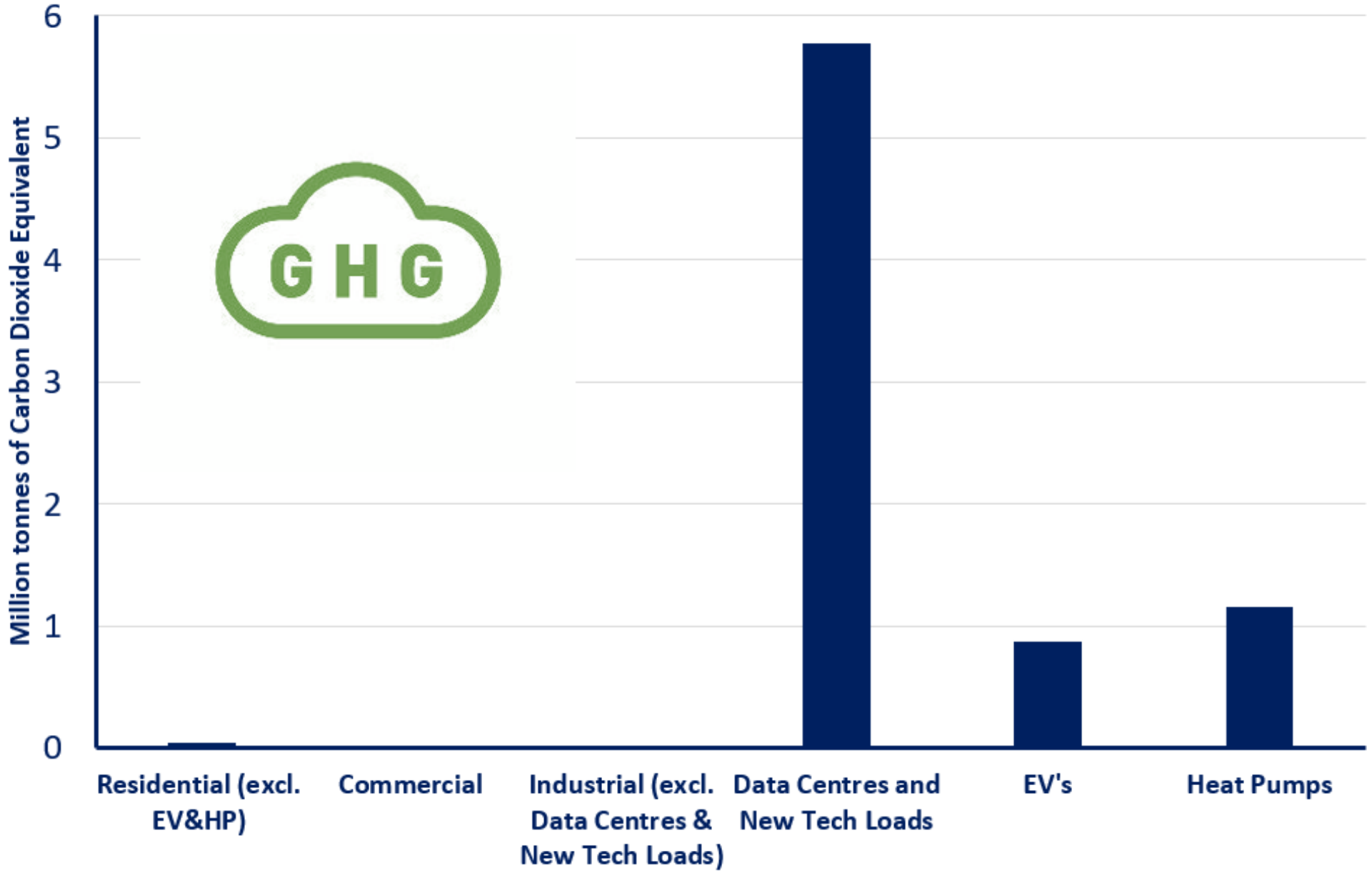
Power Sector Sectorial Ceilings: We are doing much better than expected…but not as good as we hoped

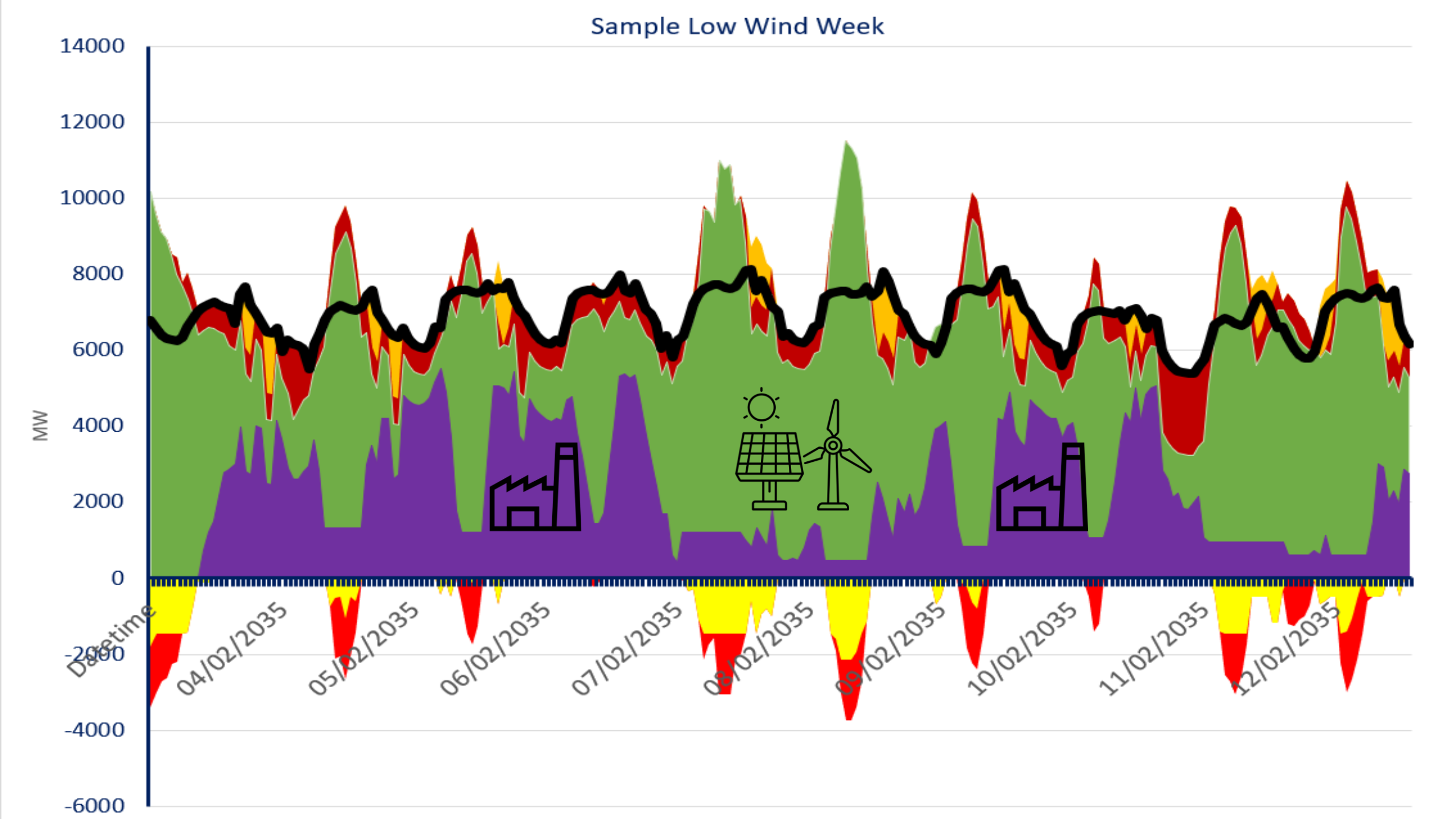

Monthly Gas and Coal Generation 2023 and Historic Ranges [2010-2022 Shaded]
Generation (GWh)
1800
1600
1400
1200
1000
800
600
400
200
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Gas 2023
Coal 2023

Power Sector Sectorial Ceilings: We cannot meet targets with medium/high demand growth from Data Centres

Ireland| Cumulative Greenhouse Gas Impact of New Electricity Loads to 2030



Power System Reliability| Operating the power system during times with 100% **renewable generation is key to reducing emissions**, beyond that being able to operate the system at times with close to **0% renewable generation is essential for reliability**

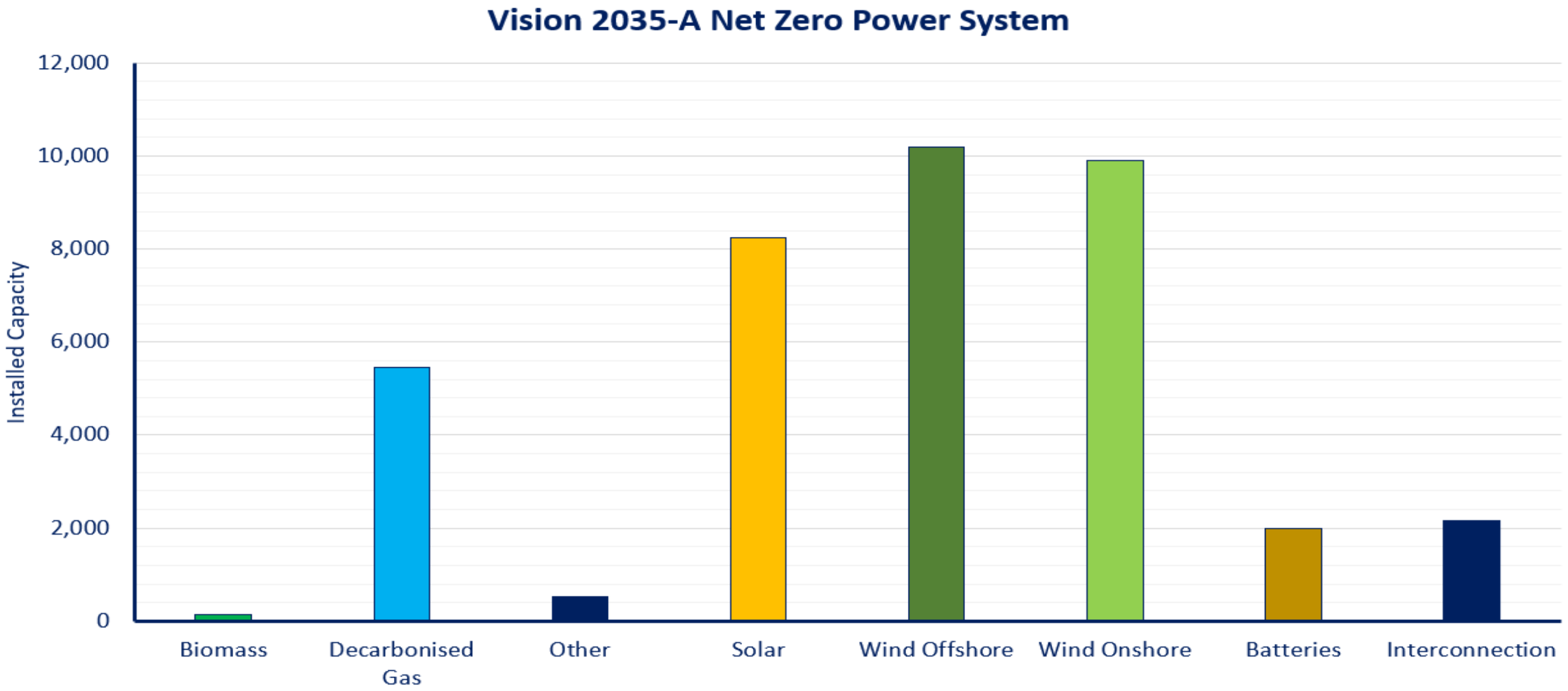

Sample Low Wind Week
14000
12000
10000
8000
6000
4000
2000
0
-2000
-4000
-6000
MW
Datetime
04/02/2035
05/02/2035
06/02/2035
07/02/2035
08/02/2035
09/02/2035
10/02/2035
11/02/2035
12/02/2035

Key Points

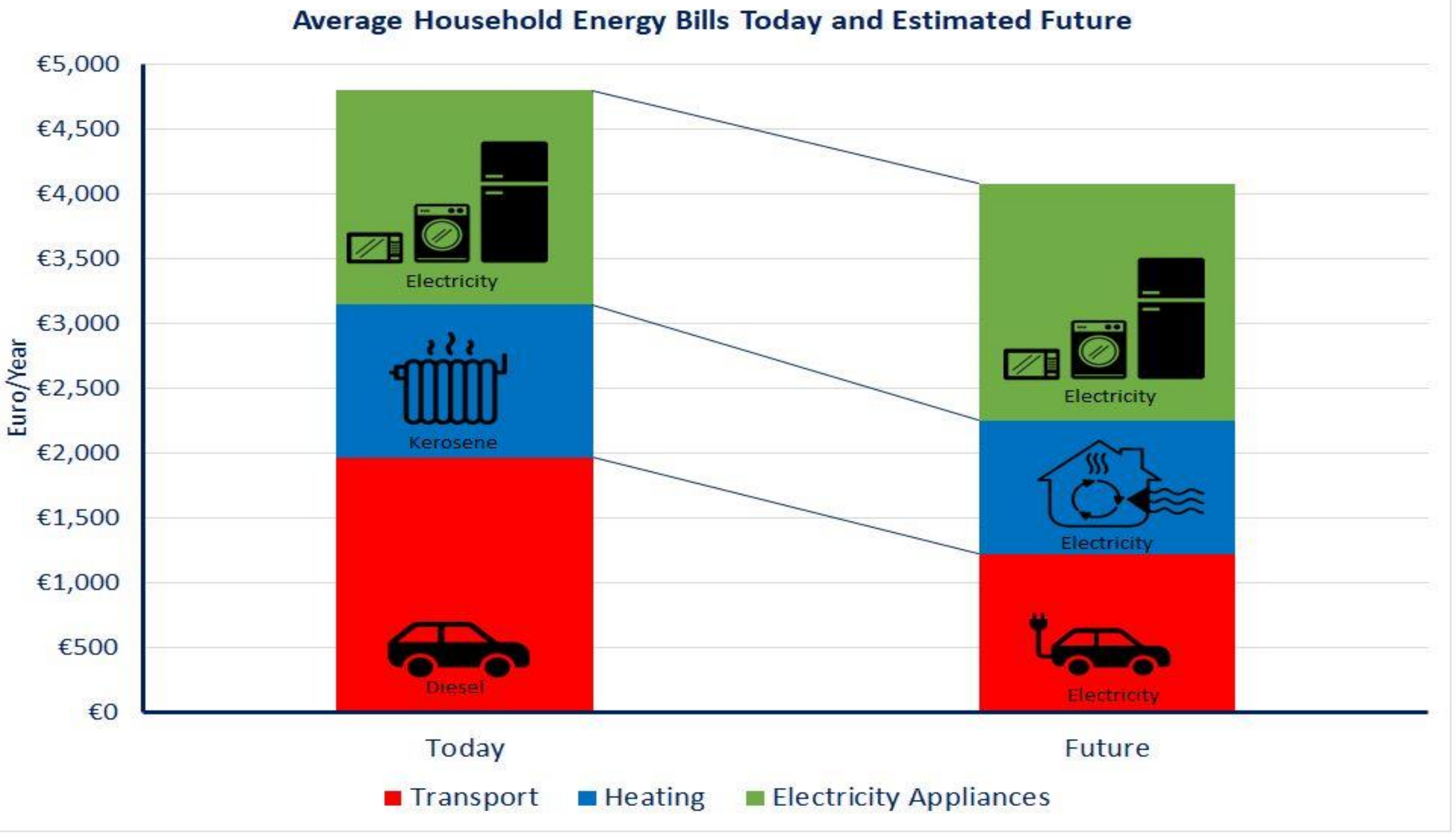
Strategic Storage as well as **Seasonal Storage** of zero carbon energy is needed in Ireland to deliver a reliable decarbonized energy system.

Power System Planning| We need a plan for a net zero power system by 2035 and understand how much grid is needed

From a Natural Gas to a Weather Driven System



In a well managed energy transition away from fossil fuels, electricity bills will go up, but energy bills will come down


Average Household Energy Bills Today and Estimated Future
€5,000
€4,500
€4,000
€3,500
€3,000
€2,500
€2,000
€1,500
€1,000
€500
€0
Euro/Year
Electricity
Kerosene
Diesel
Electricity
Electricity
Electricity
Today
Future
Transport
Heating
Electricity Appliances

Net Zero and Net Export| We need 10-15 GW of Offshore wind to meet Net-Zero targets, additional wind is for Net Export

Appendix of Results-Electricity Requirement and associated Offshore Capacity needed. All scenario assume 11.5 GW of onshore wind by 2050.

Note figures are ROI only.

Scenario	2020	2030	2040	2050	Unit
Electricity Needs (Max)	32	58	86	107	TWh
Electricity Needs (Min)	32	48	71	90	TWh
Electricity Needs (Low Demand)	32	40	48	53	TWh
Offshore Capacity (Max)	0	6	11	15	GW
Offshore Capacity (Min)	0	4	8	11	GW
Offshore Capacity (Low Demand)	0	2	3	4	GW

WIND ENERGY IRELAND

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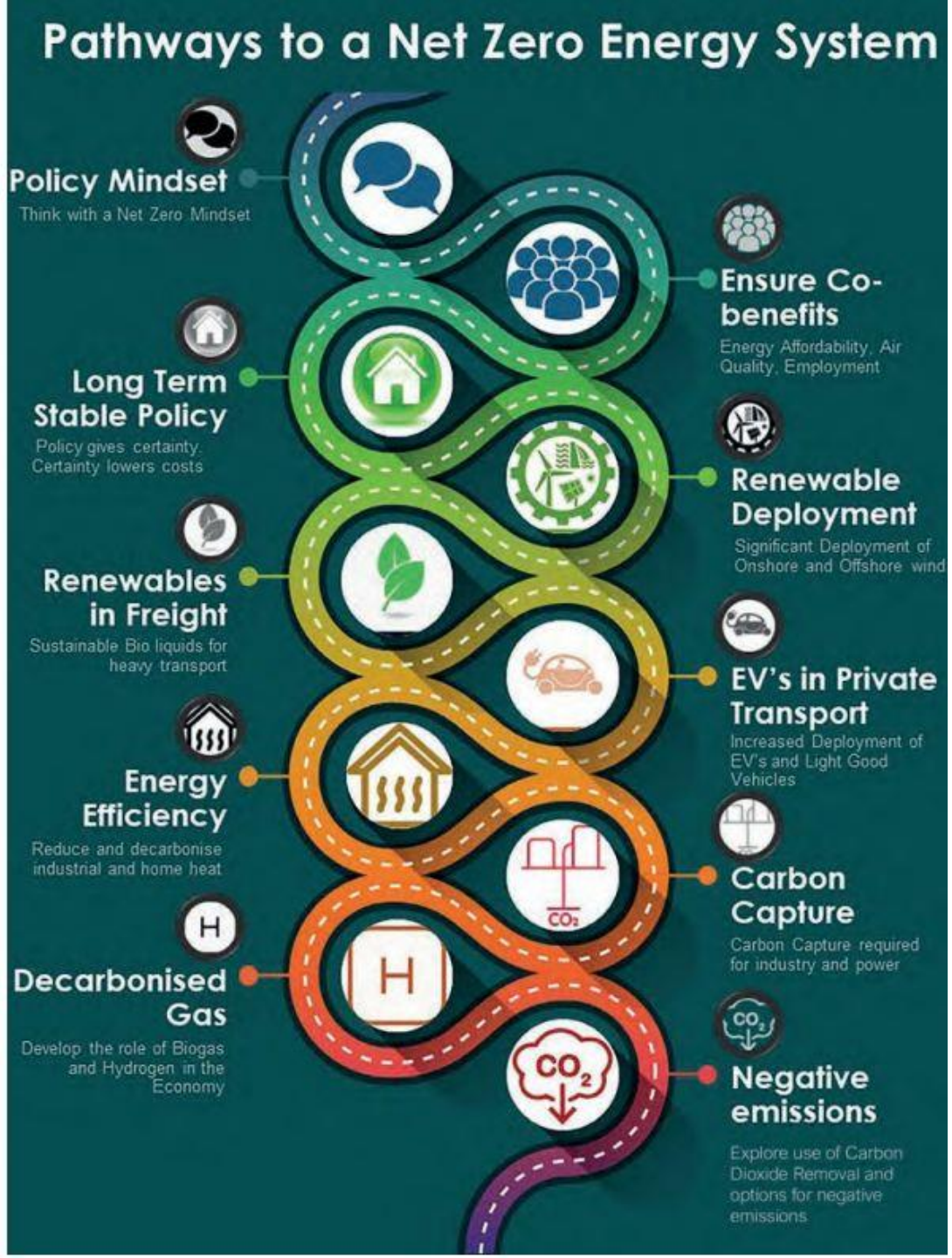
Both emissions **reductions**, and **removals** are needed


Pathways to a Net Zero Energy System
Policy Mindset
Think with a Net Zero Mindset
Long Term Stable Policy
Policy gives certainty. Certainty lowers costs
Renewables in Freight
Sustainable Bio liquids for heavy transport
Energy Efficiency
Reduce and decarbonise industrial and home heat
Decarbonised Gas
Develop the role of Biogas and Hydrogen in the Economy
Ensure Co-benefits
Energy Affordability, Air Quality, Employment
Renewable Deployment
Significant Deployment of Onshore and Offshore wind
EV's in Private Transport
Increased Deployment of EV's and Light Good Vehicles
Carbon Capture
Carbon Capture required for industry and power
Negative emissions
Explore use of Carbon Dioxide Removal and options for negative emissions