



Energy for generations

DRIVEN TO MAKE A DIFFERENCE

NET ZERO BY 2040

Future Outlook for Floating Wind & Wave in Ireland

Colm de Burca, ESB Innovation

ESB Overview

Regulated Networks
Business in Republic
of Ireland and
Northern Ireland



Generation Business
c. 30% Market Share
4.2GW in Ireland
1.4GW in GB



Retail Electricity &
Gas Business
c. 34% Market Share
1.4m Customers



ESB Net-Zero by 2040 Strategy

WE'RE DRIVEN TO MAKE A DIFFERENCE

Decarbonised Electricity

Science Based Target 2030, Net Zero 2040

Higher renewable targets

Faster, steeper reduction in carbon intensity

Increased focus on Island of Ireland / GB investment for specific purposes



Resilient Infrastructure

Transform ESB to a data driven digital utility

Position for large scale storage and renewable balance

Transition to reliable low carbon electricity system

Step forward on **social and environmental responsibility** – cultivating a safe, sound and sustainable ethos in line with our values



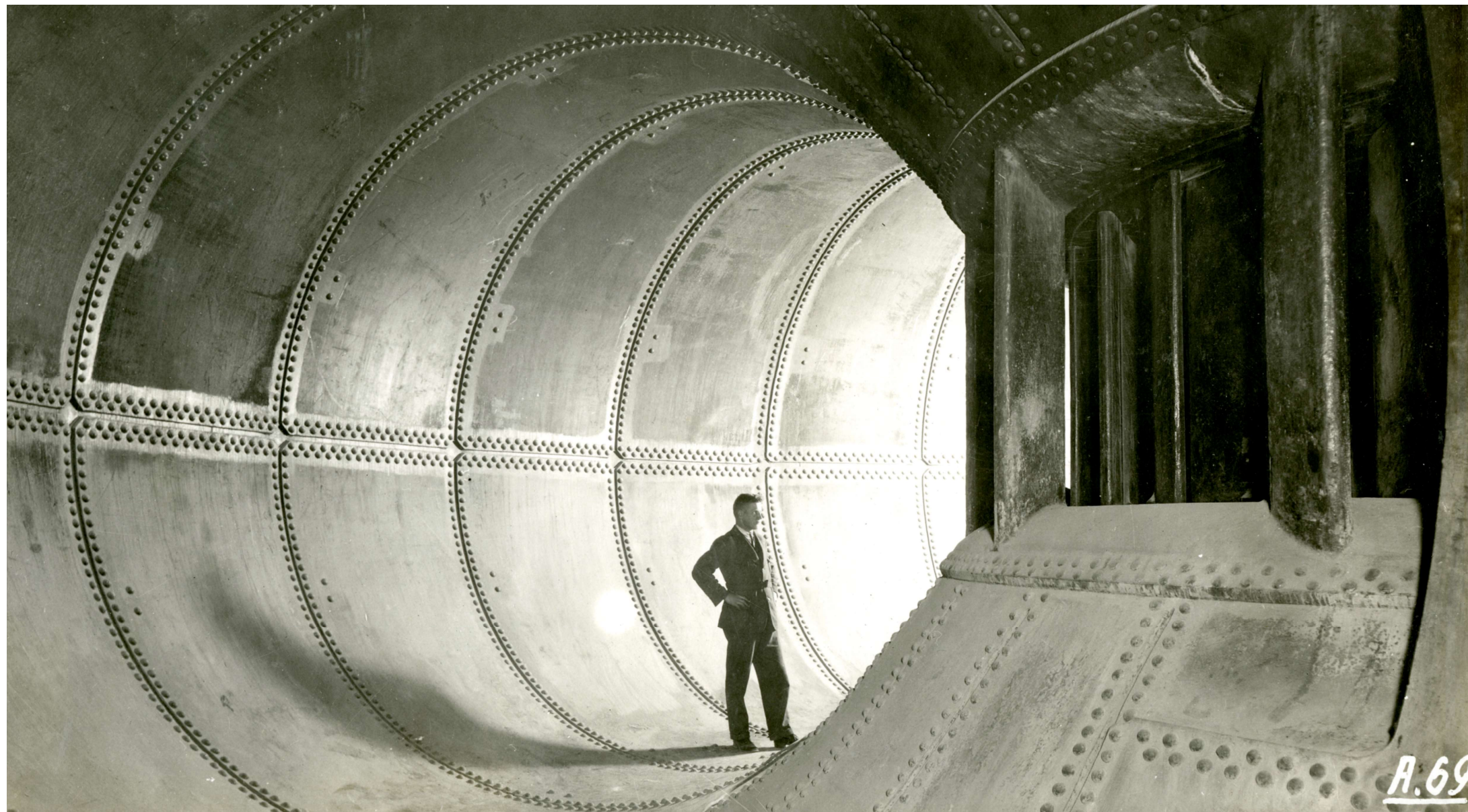
Empowered Customers

Scaled up ambition for electrification of heat and transport

Sharper focus on energy services

Ensure we have the people capability to deliver our strategic objectives, with a strong, values based and **inclusive culture**

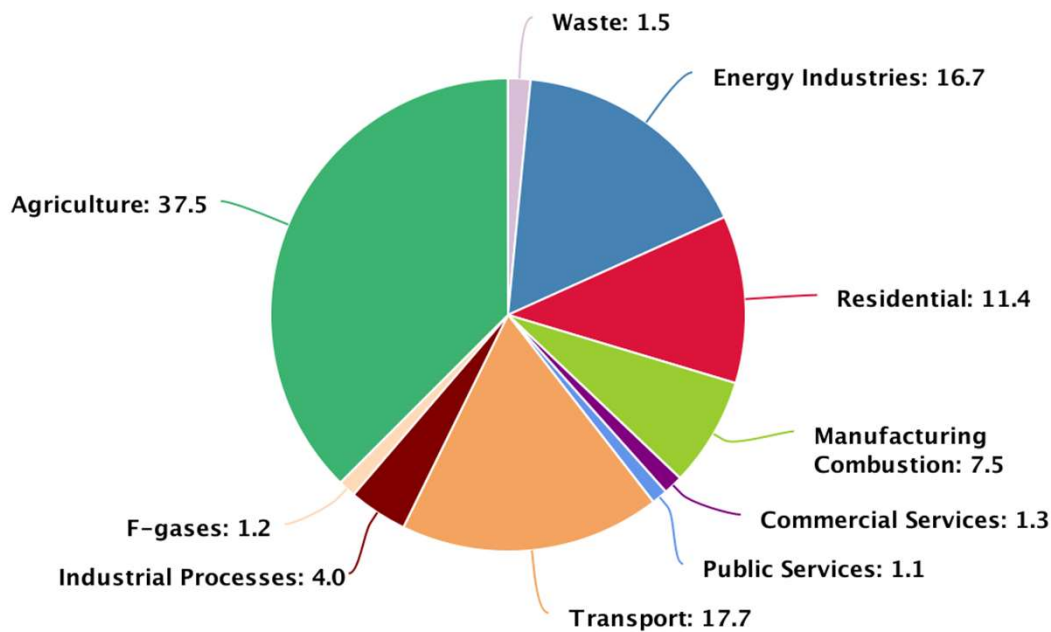




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The challenge and the response

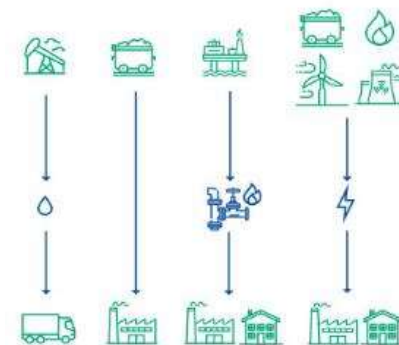
Greenhouse gas emissions share by sector in 2021



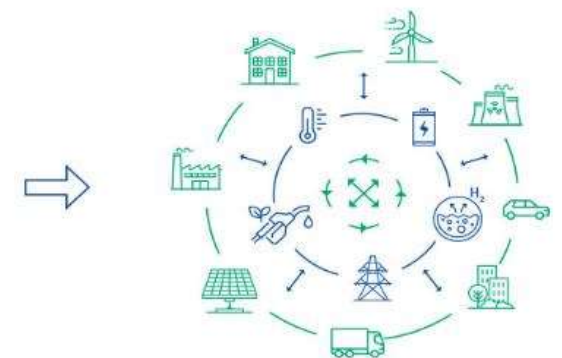
Highcharts.com



The energy system today :
linear and wasteful flows of energy,
in one direction only

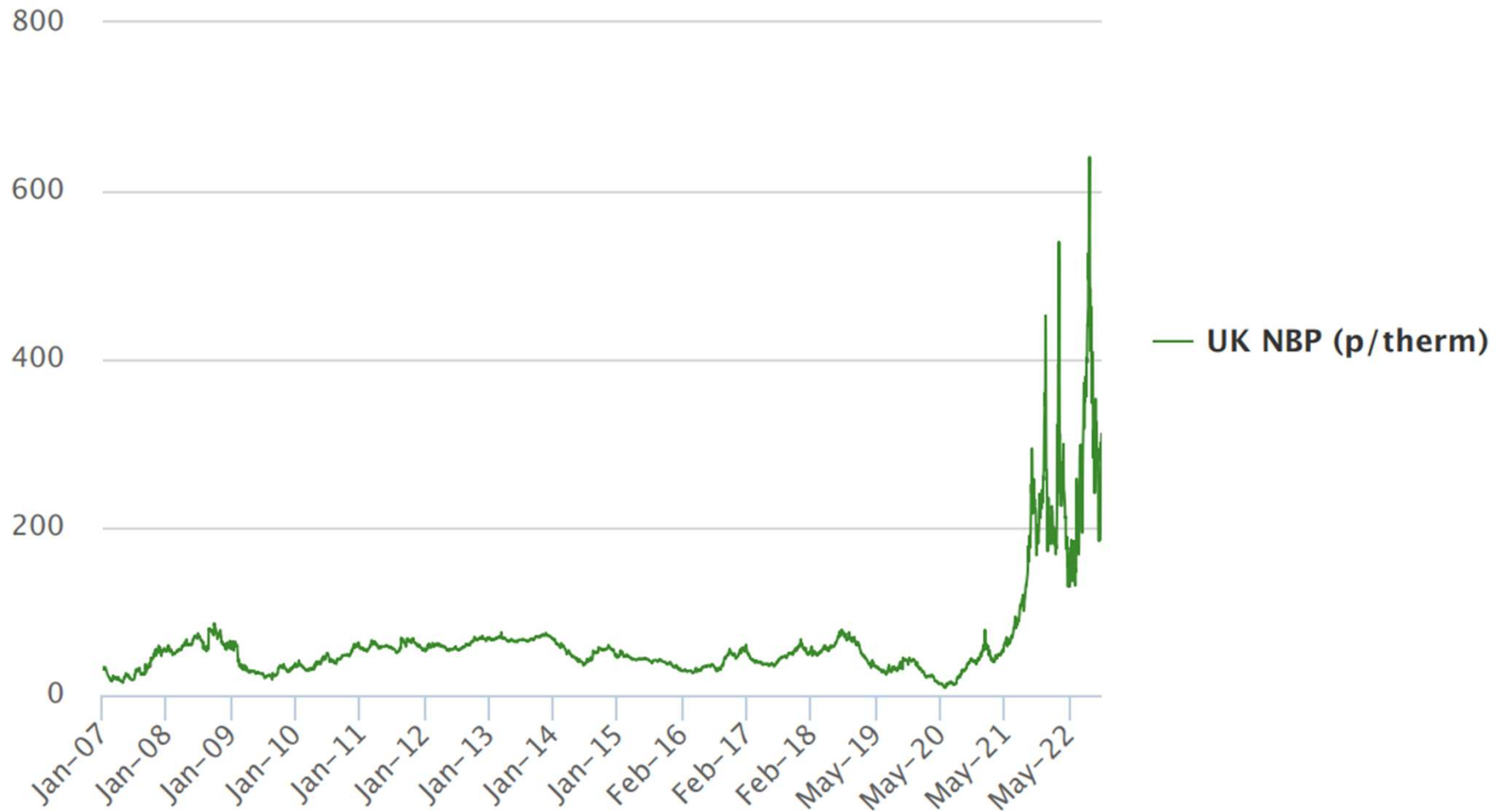


Future EU integrated energy system :
energy flows between users and producers,
reducing wasted resources and money

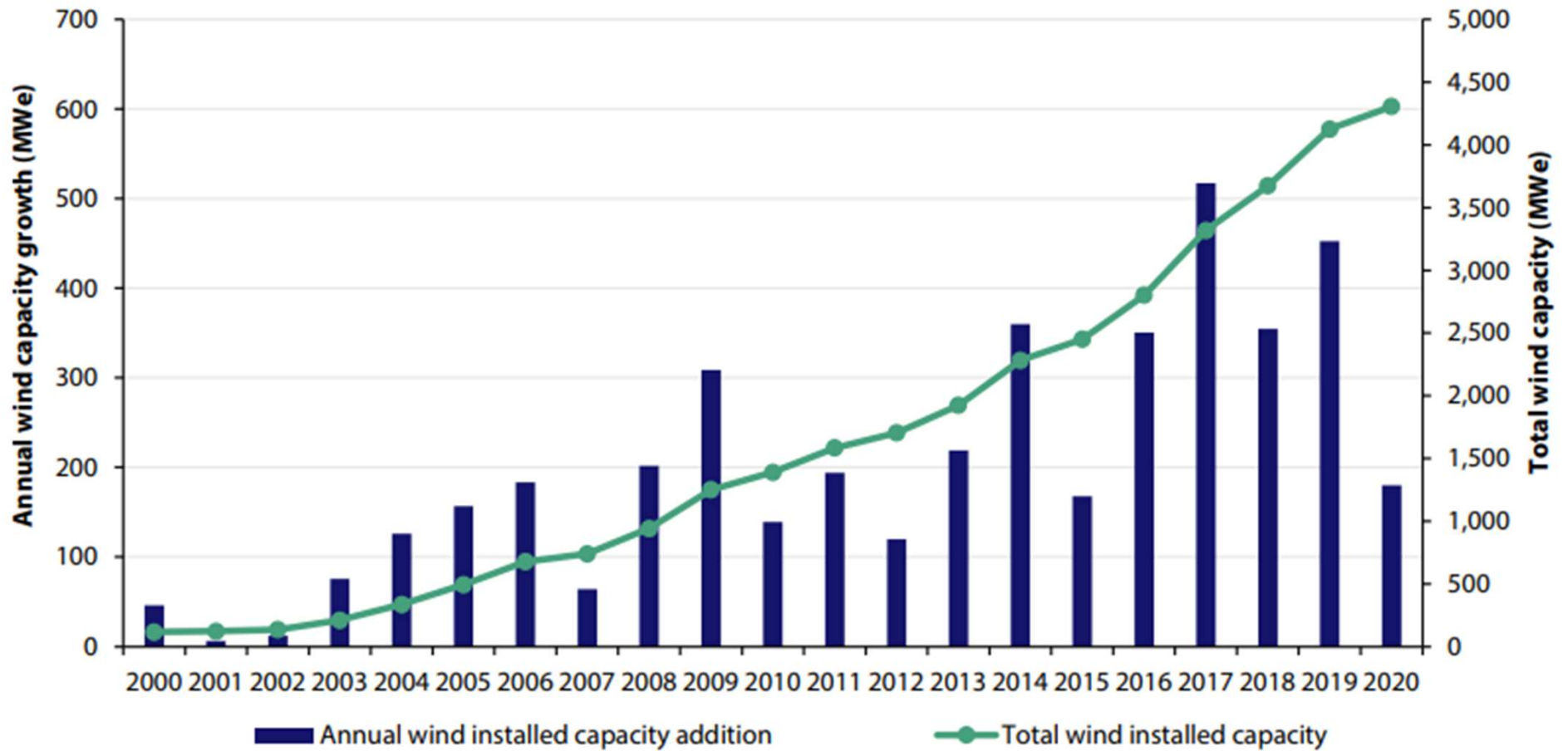


Unprecedented Wholesale Gas Prices since 2021

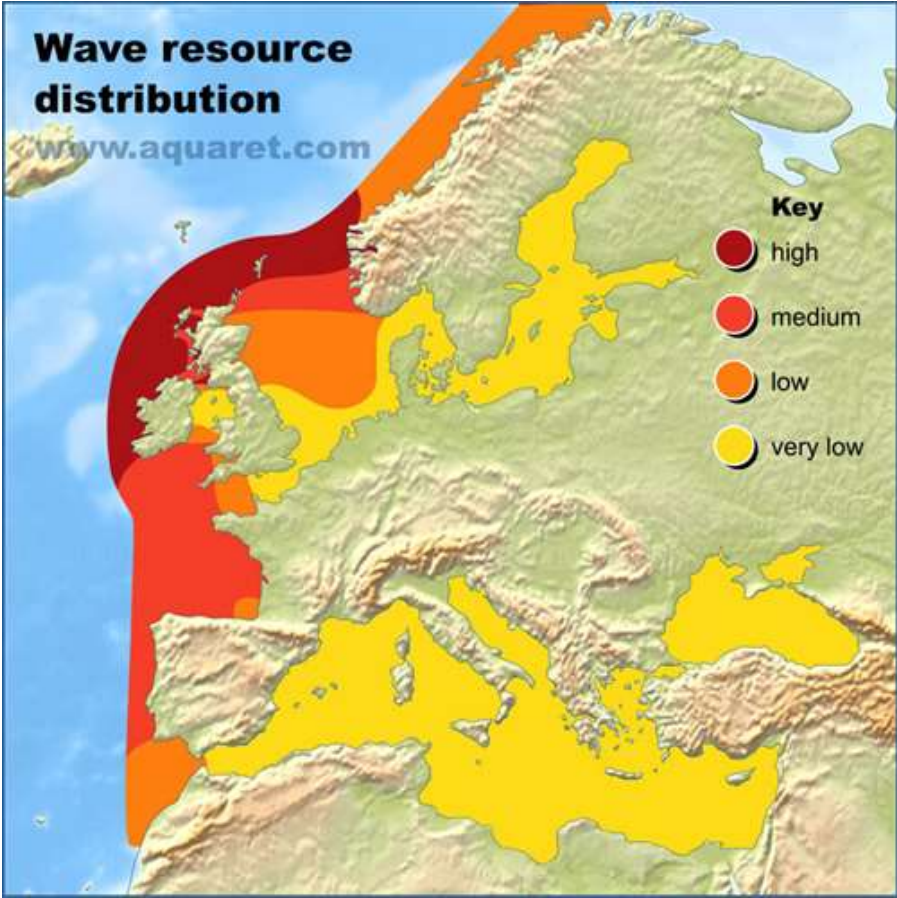
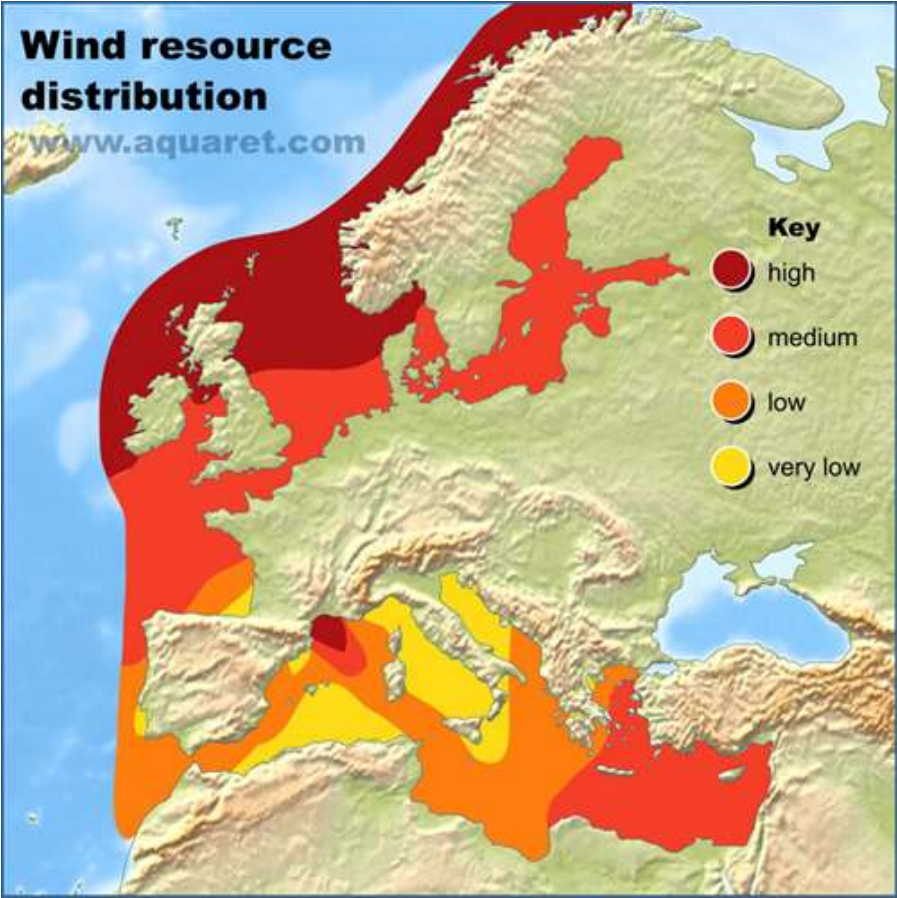
Source: Intercontinental Exchange, US Energy Information Administration, ERCE Estimates



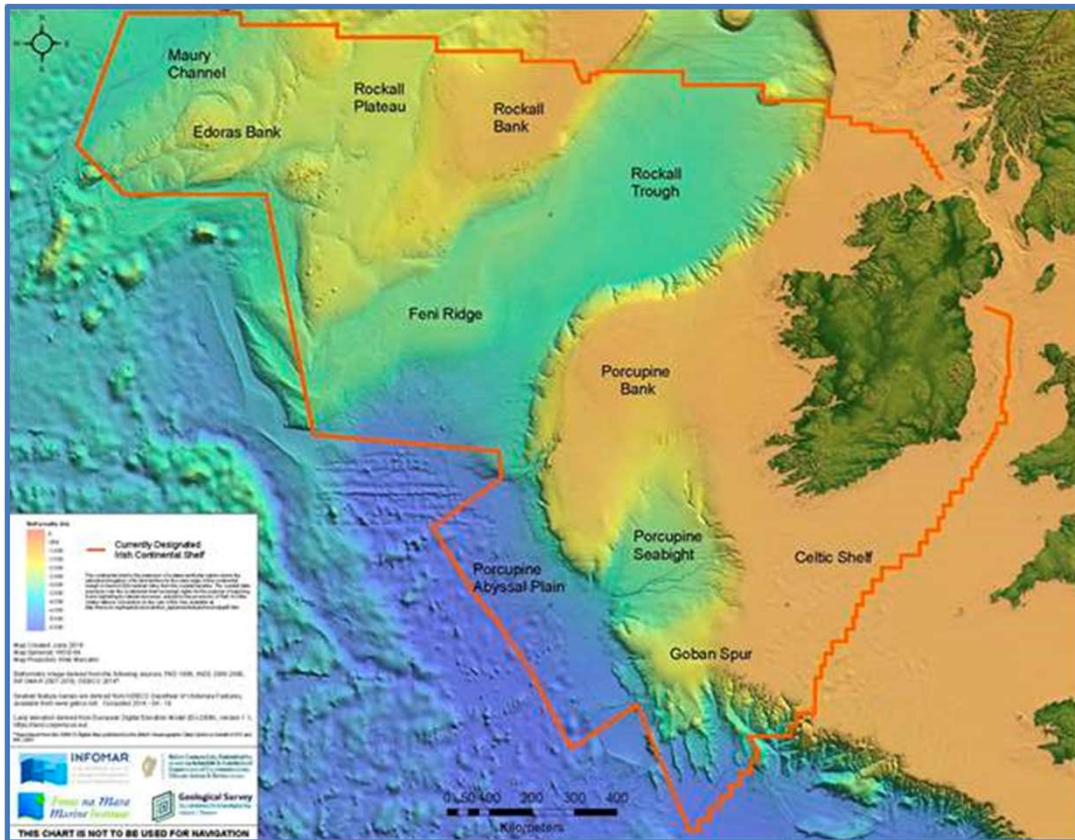
Growth in On-Shore Wind in Ireland



World-class marine renewables resource on our doorstep



Offshore Wind and Wave – Ireland’s Potential



Ireland’s Seabed Area



Our energy, our future

How offshore wind will help Europe go carbon-neutral



- ❑ 7GW capacity in offshore wind by 2030 off Ireland’s eastern and southern coasts;
- ❑ Potential of at least 30GW of offshore floating wind power in the Atlantic
- ❑ Wind Europe state a potential of 85GW in the Atlantic area by 2050;
- ❑ ESB inhouse analysis anticipates that Ireland’s offshore wind demand by 2050 may be c. 30GW;
- ❑ 30GW of wave energy potential

Key Enablers of the Marine Renewable Industry

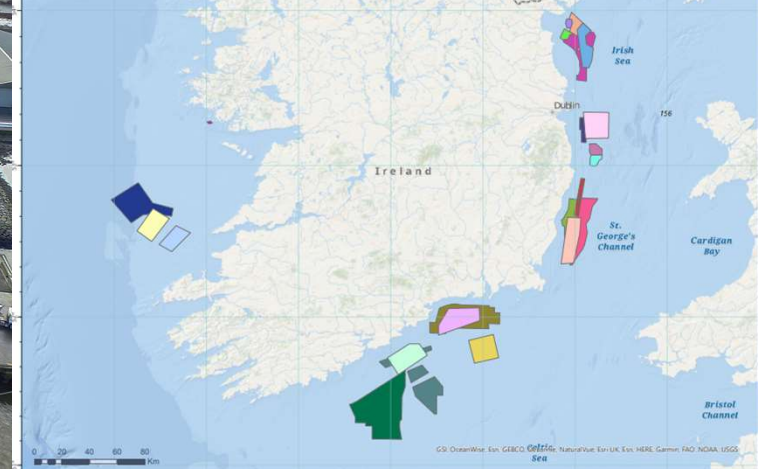


Rialtas na hÉireann
Government of Ireland

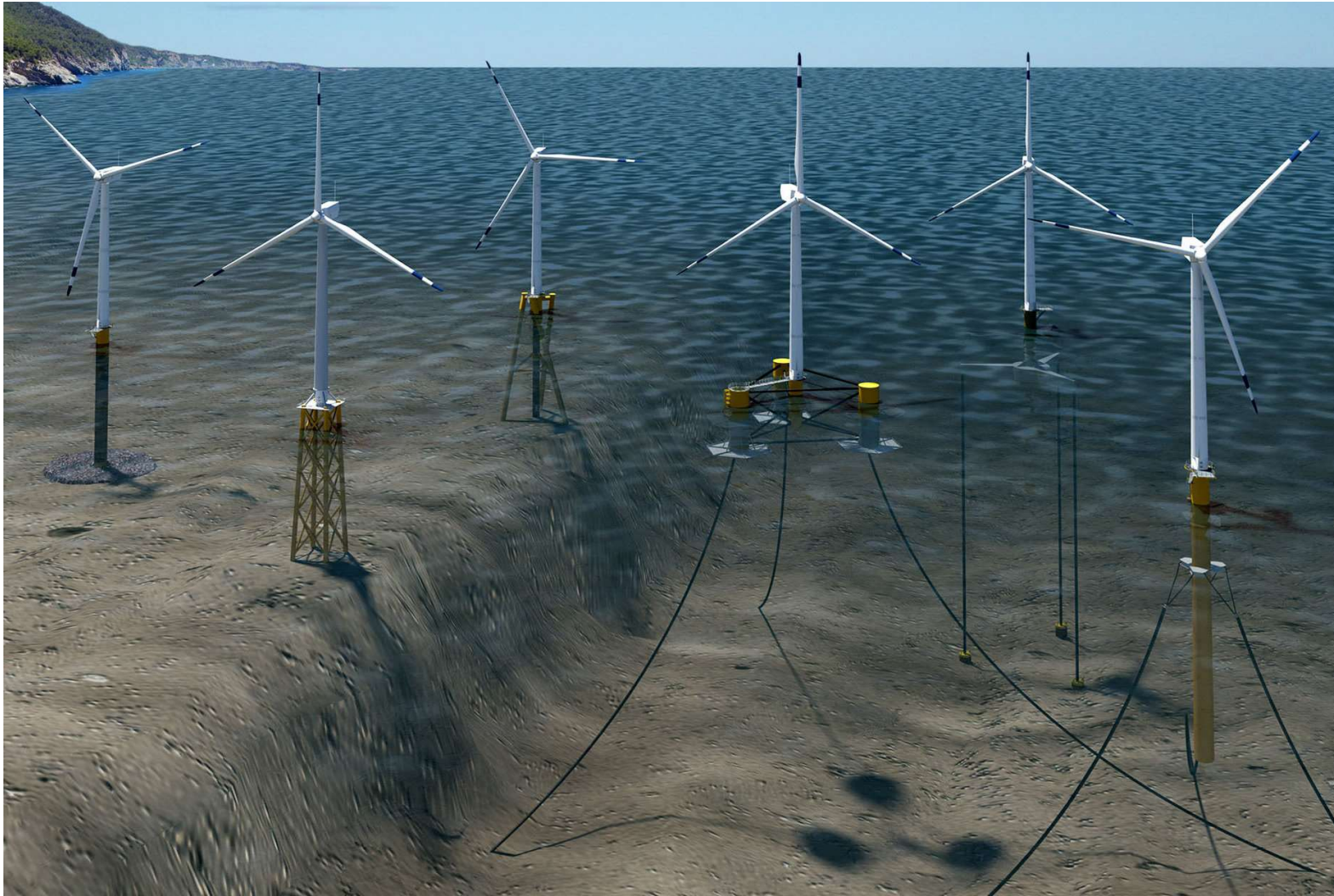
Draft Terms and Conditions for the First Offshore Competition under the Renewable Electricity Support Scheme

ORESS 1
Consultation Response

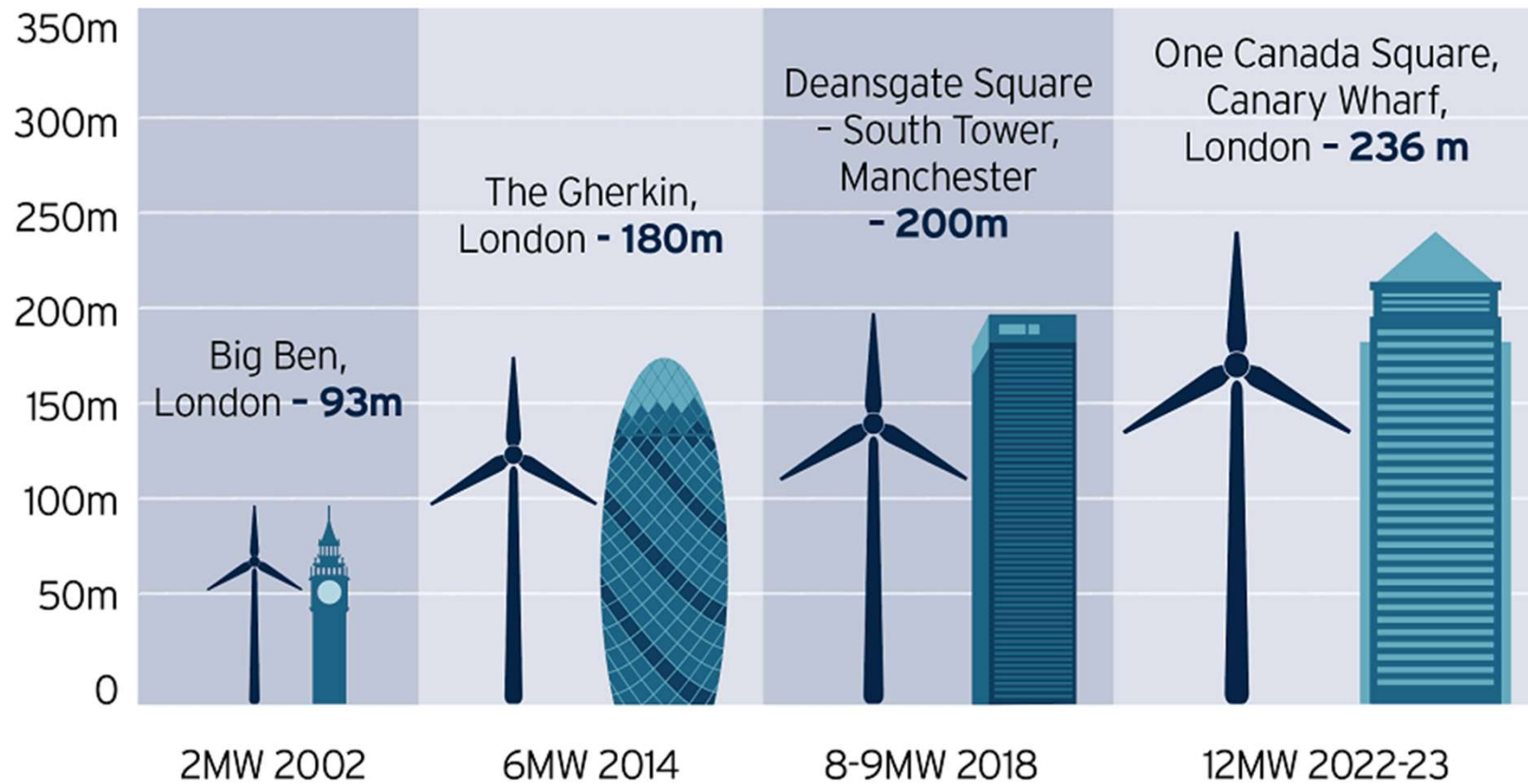
May 2022



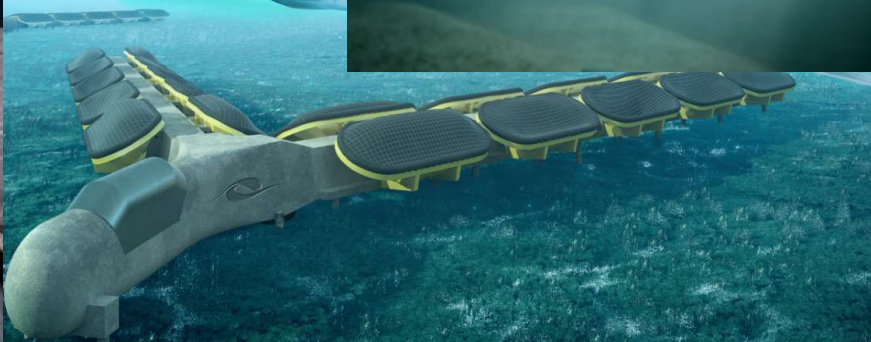
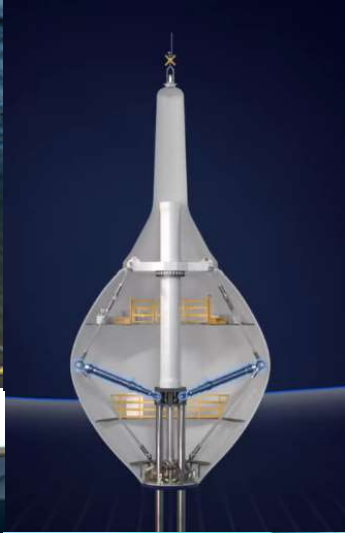
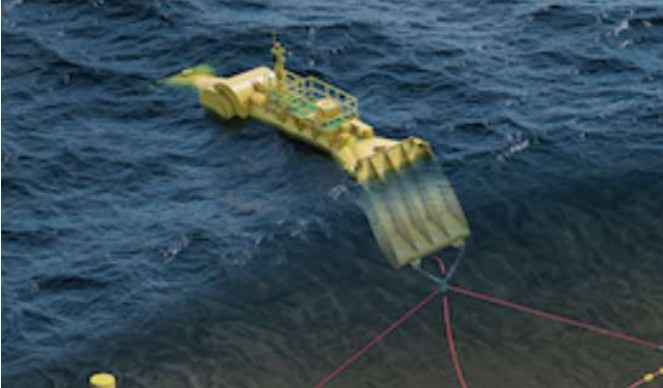
Floating Off-shore Wind Technologies



Evolution of wind turbine size



Wave Energy Technologies





A Unique Economic Opportunity for Ireland



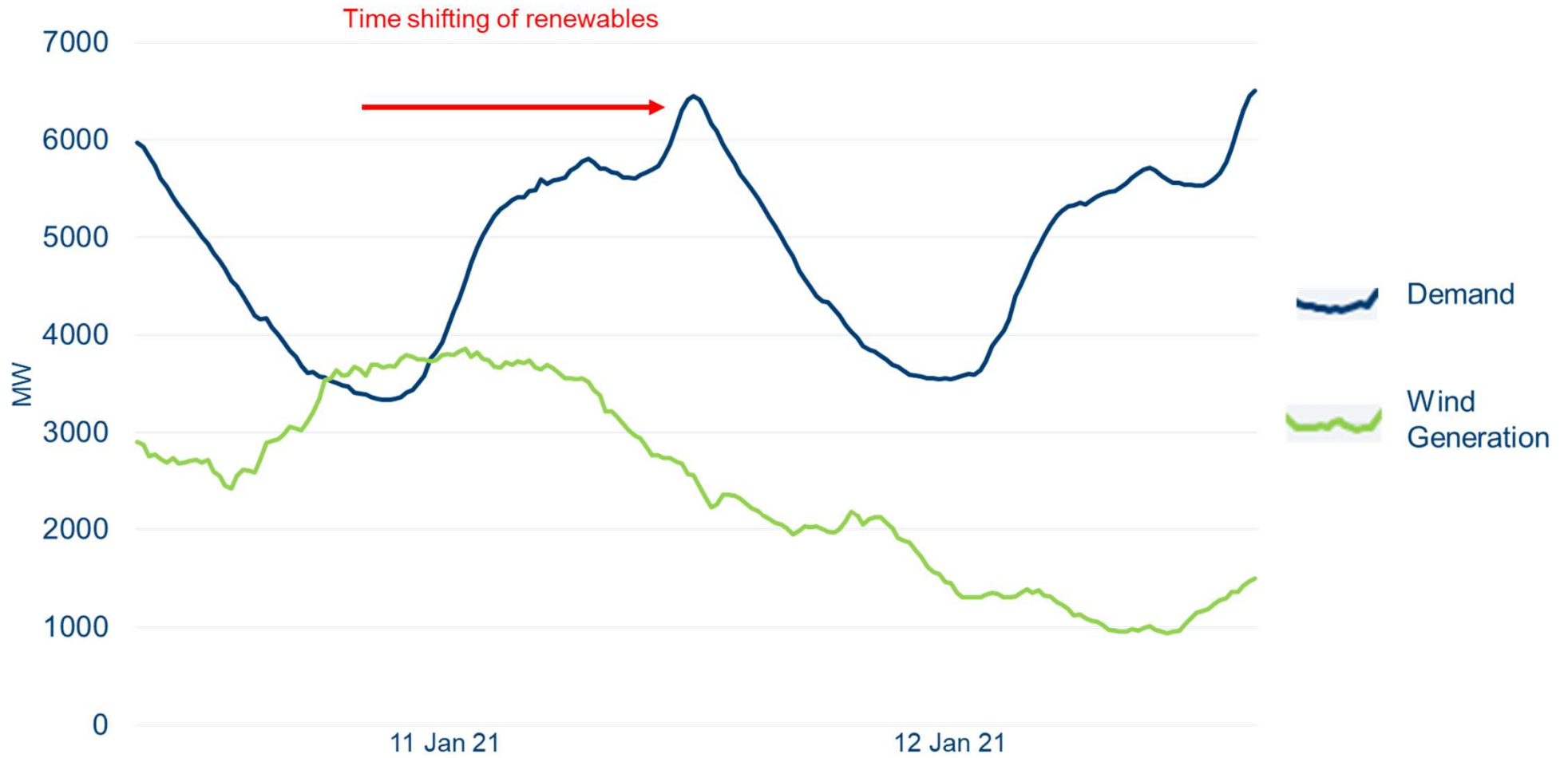
Export Market - EU Super Grid and Green Hydrogen



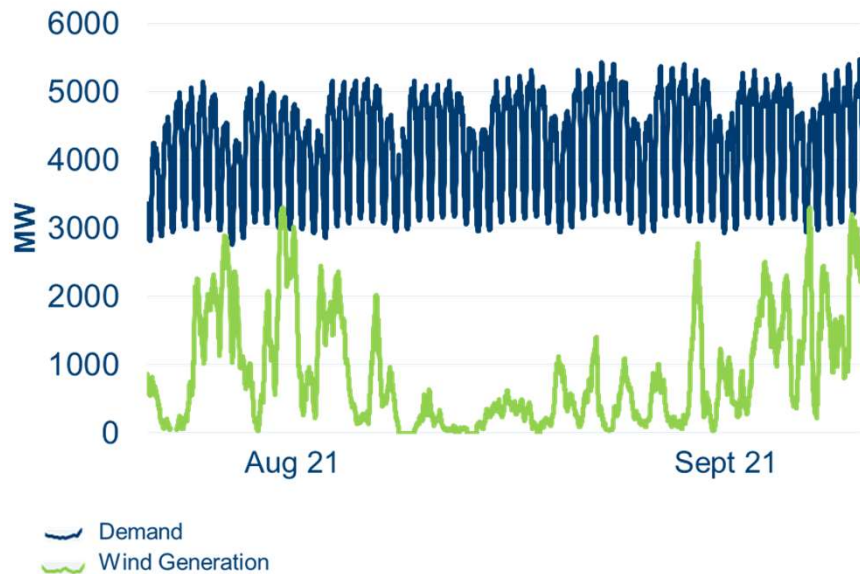
Hydrogen & Storage Clusters



Short-Term Within Day Storage

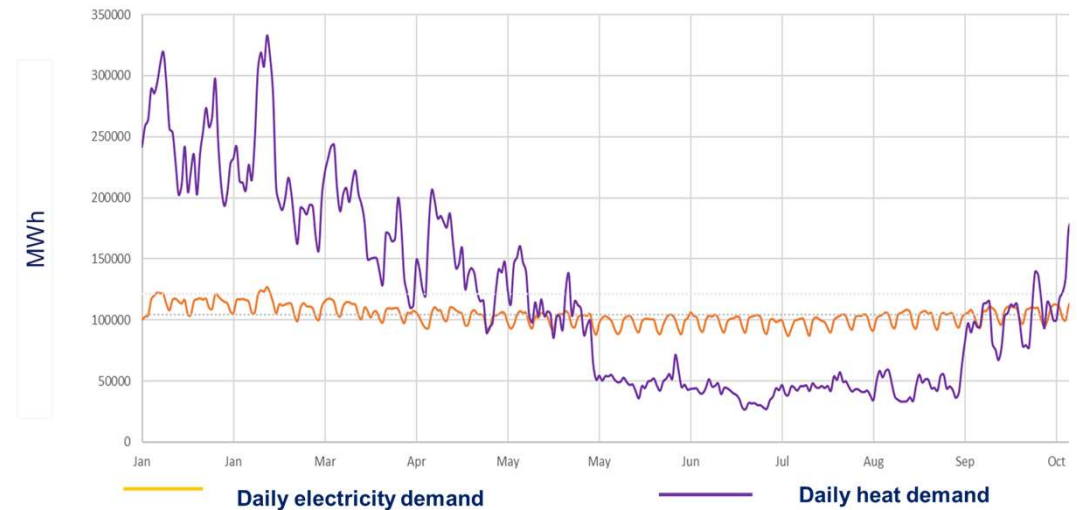


Storing Zero Carbon Energy will be critical



The Intermittent nature of Renewables

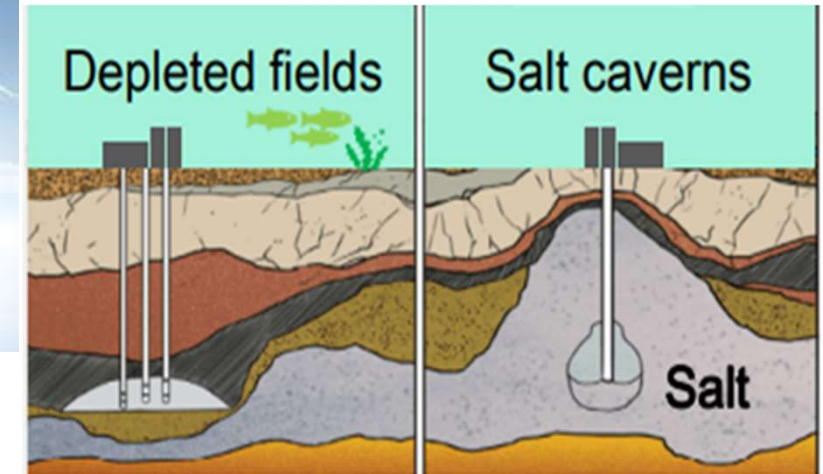
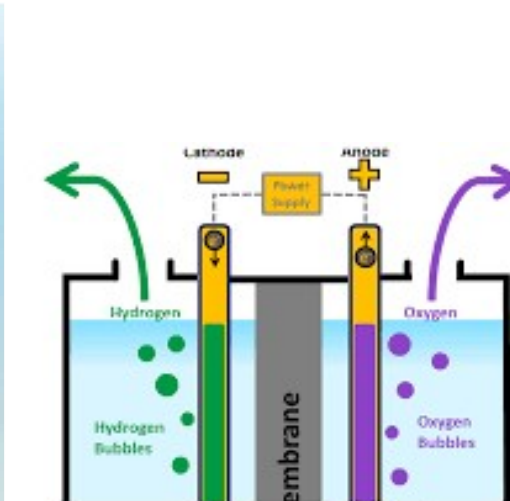
Daily demand for electricity , energy for fossil based heating



Seasonal Variation between Supply and Demand

Requires Seasonal Scale Energy Storage

Green Hydrogen has the potential to store energy of the required scale

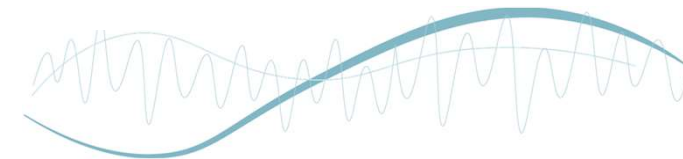
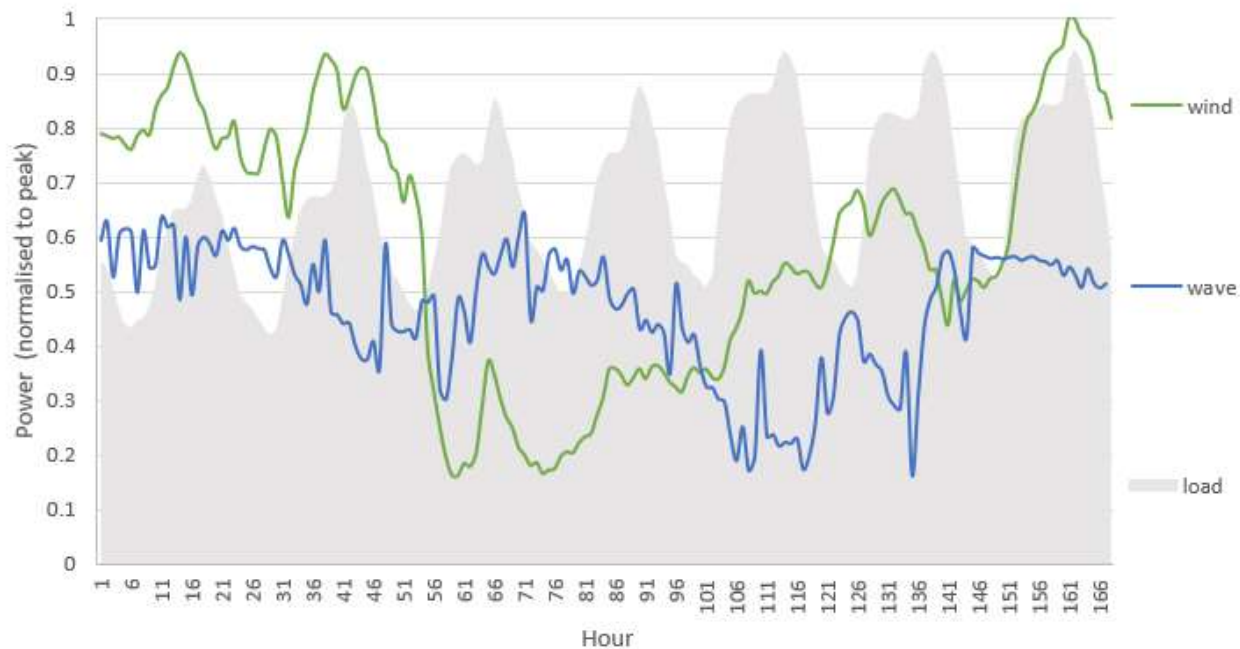


System benefits of marine energy

Hypothesis: ocean energy can provide additional benefits to low carbon energy systems due to offsetting of resource with established renewable generation – such as wind and solar PV



GB load and generation comparison - first week of January 2015



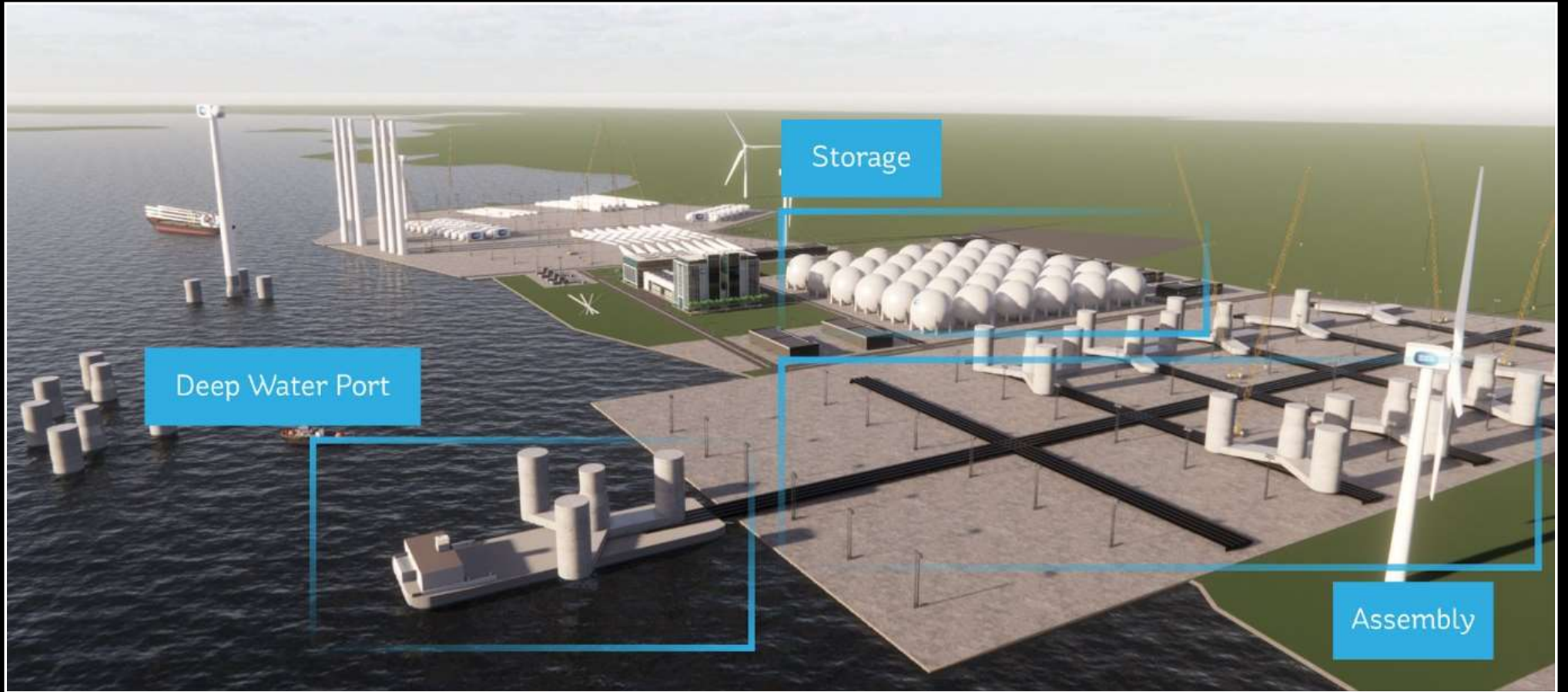
Value in diversified renewables portfolio



EU-SCORES

European Scalable Offshore Renewable Energy Sources



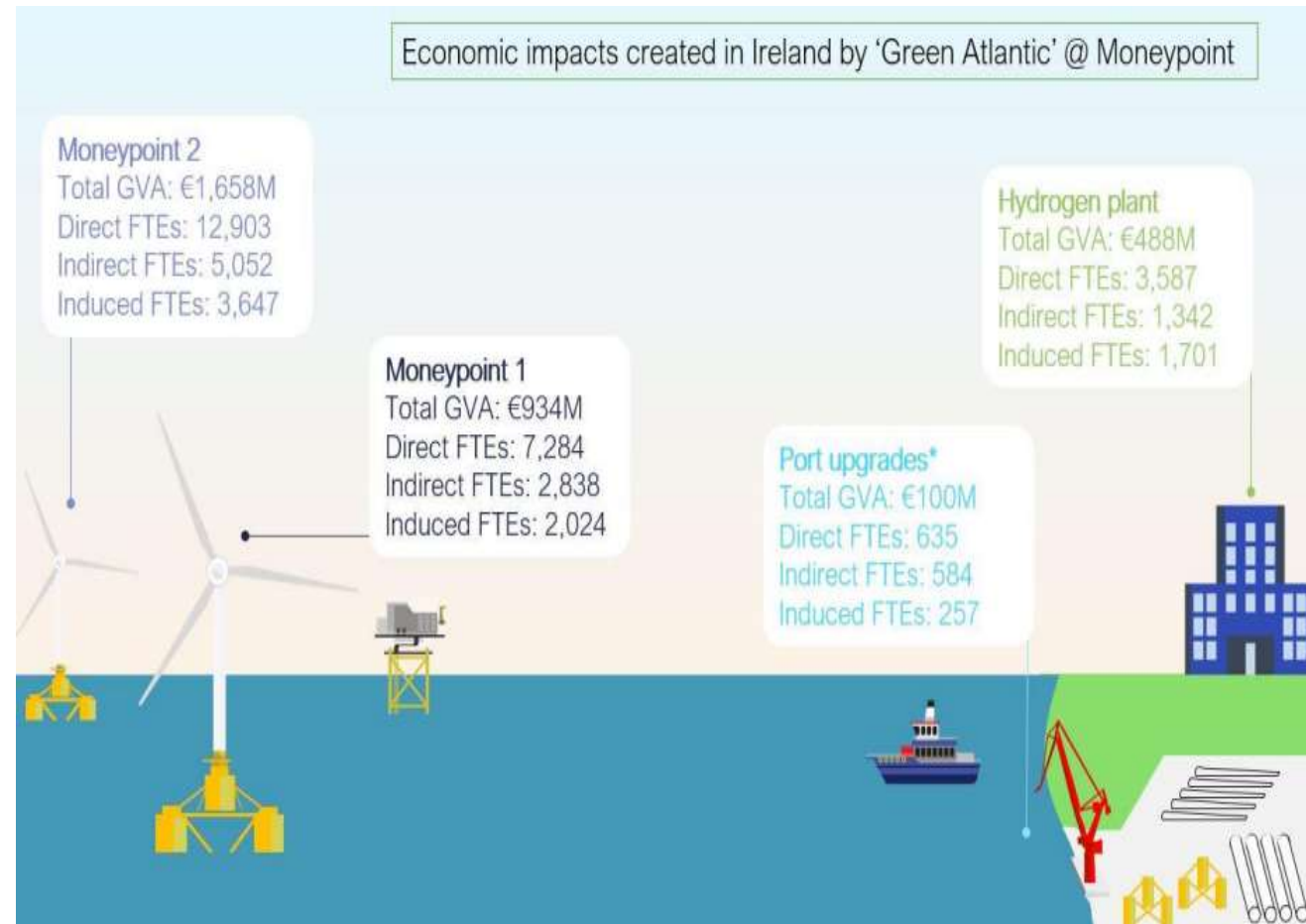


Green Atlantic @ Moneypoint



Green Atlantic @ Moneypoint – Benefits

- ❑ Direct GVA is c. €3.1bn with €1.1bn locally (MidWest region);
- ❑ This project has the potential to deliver 41,000 FTE years over the lifetimes of the projects with many more indirect jobs;
- ❑ Significant number of additional jobs can be created based on a delivery of a further 500MW annually from Moneypoint serving the west coast



A Generational Opportunity for Ireland





ESB to hire 1,000 people as part of net zero push

The recruitment drive is part of the electricity firm's push to provide the infrastructure and services required to meet its net zero emissions target by 2040



Thank You for your Attention



Energy for
generations

