GenComm Meeting

Wednesday 29th March 2023

Bord Gáis Energy

Imagine a better way

Bord Gáis Energy - Our history

Our heritage is deep rooted in Irelands energy history

We started in gas
Initially included group of independent privately owned companies operating in Dublin, Cork, Limerick & Waterford

1976
Bord Gáis set up as a semi state company

1979
First natural gas customers ESB power station & the NET fertilizer plant

1987-on
Large scale growth in gas customers

1994
Bord Gáis Energy launches Pre Payment Meters

2001
Bord Gáis Energy enters the electricity market to supply commercial customers

2009
The Big Switch campaign sees Bord Gáis Energy enter the residential electricity market

2010
Bord Gáis Energy acquired SWS wind

2011
Bord Gáis Energy's power plant in Whitegate begins supplying the electricity market

2012
Launch of Bord Gáis Energy Rewards Club (a first in the Irish energy market)

2014
1 July – residential gas deregulation; Bord Gáis Energy becomes part of Centrica Plc

2021
Restructured our business to lead the net zero journey

2022
Launched our Sustainability Strategy

Centrica is committed to play our part and help our customers adjust to net zero

Climate Transition Plan: be a ***net zero business by 2045*** *and help our* ***customers be net zero by 2050***

Our Business Climate Plan:

- Reduce our property emissions in the UK by 50% by 2030
- Grow low carbon asset portfolio up to 1GW in operation (solar, batteries, gas peakers and hydrogen) by 2027
- Establish a zero emission fleet in 2020s

Our Customer Climate Plan:

- Roll out energy efficiency management solutions
- Deliver low carbon technologies (EV charging, heat pumps and hydrogen as an alternative to natural gas heating)
- Supply cleaner energy from renewable assets, biomethane and hydrogen

Centrica Group existing hydrogen fuel switching demand:

Easington Terminal

Barrow Terminal

Brigg Gas Peaker

c.1200 x CHPs

Whitegate CCGT

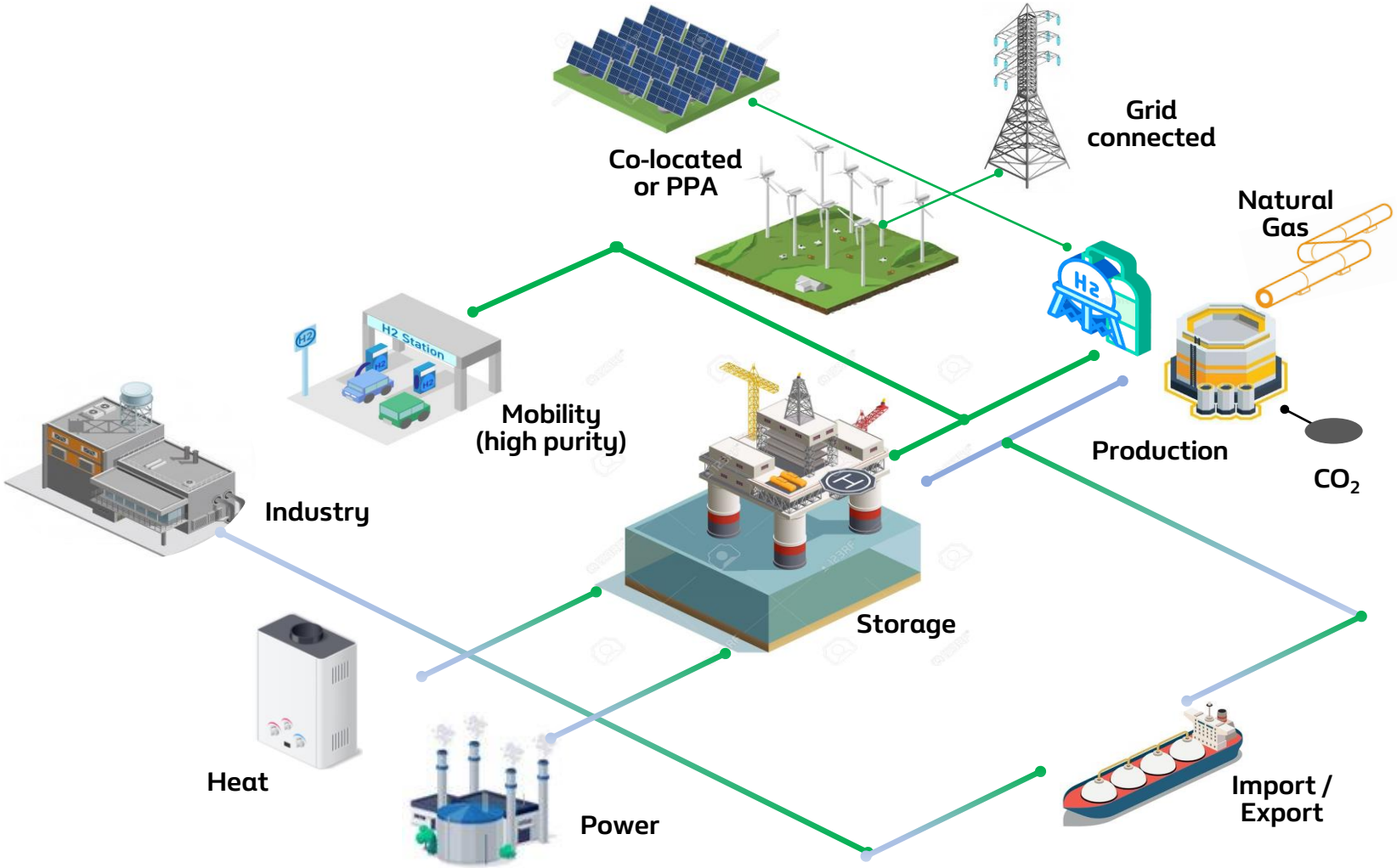
Additional demand

- BG fleet
- Domestic heating
- Planned peaking generation

Centrica Group fuel switching capacity is c.550ktpa or 22TWh of hydrogen (excluding additional demand)

550ktpa requires **c.5GW of installed low carbon hydrogen production**, driving the demand for hydrogen production

Centrica are taking a whole system approach to hydrogen



UK energy supply & services

Over **10 million** I&C and residential customers in UK

Largest UK heating installer

8,000 heating engineers and world-class training academies

European asset management

16GW renewables across Europe with in-house optimisation platform

Long duration energy storage

Rough gas field potential to provide long term strategic **UK energy storage**

Global energy trading

300 physical LNG cargoes traded globally per year

Centrica's activities in hydrogen sit across the full value chain

centrica Business Solutions

Hydrogen ready solutions for customers and decentralised production

- Partnership with HiiROC – pilot project to blend H2 into peaker
- Partnership with 2G on H2-ready CHPs
- Building 1GW of solar, batteries and peakers with H2 synergies

centrica storage

Conversion of Rough into a hydrogen storage facility and large scale production

- Fuel switching to H2 at Easington Terminals
- Co-op agreement with Equinor for GW+ scale blue and green H2 production hub
- MoU signed with Lhyfe to explore offshore green hydrogen

Bord Gáis Energy

Developing hydrogen ready power stations

- Transitioning the Whitegate 450MW CCGT to H2
- Developing 200MW of H2-ready gas peakers

centrica Energy Trading

Electrolyser PPAs and optimisation, GoO, and ammonia shipping

- Electrolyser optimisation services – first 20MW site in operation in Denmark
- Demonstrating H2 injection into the NTS and the role of green gas certificates

British Gas

Building expertise to install and service hydrogen boilers

- Supporting Hydrogen Village Trials
- Exploring hydrogen vans to help achieve decarbonisation of 9,000 BG vans – MoU established with Ryze Hydrogen

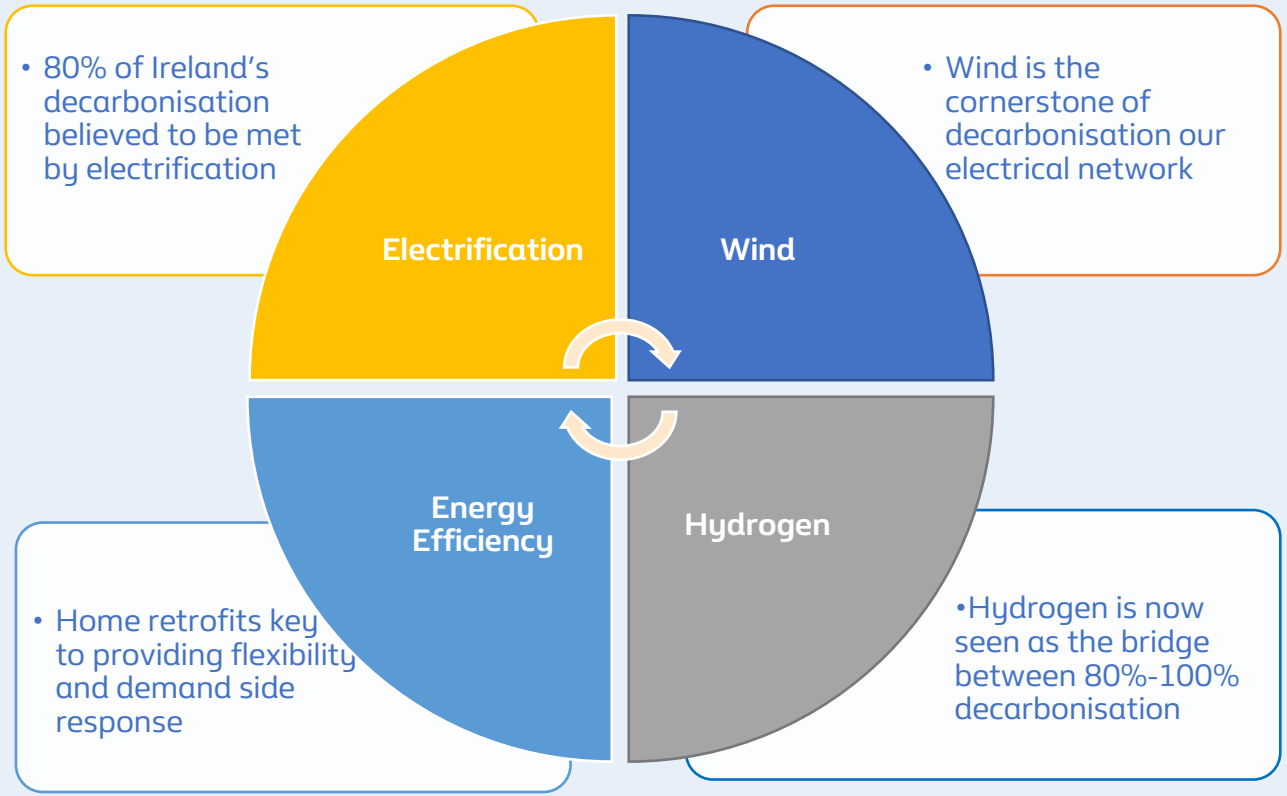
Today, we are one of Ireland's largest energy and services companies, with a purpose to help customers live sustainably, simply and affordably.

Bord Gáis Energy

Imagine a better way

Policy Environment

Ireland's decarbonisation goals are centred around electrification and Ireland's wind resources. The focus is now turning to how investment in flexible and storable assets to balance the system is incentivised. This alongside EU interventions are changing the shape of Irish energy markets



Irish Government to half carbon emissions by 2030:

- Transport: 1m EV's by 2030 (<15k today)
- Electricity: 80% renewables by 2030 (36% today)
- Heating: 600,000 heat pumps by 2030
- Efficiency: 500,000 home retrofits by 2030
- Gas/H_2: Limited/minimal targets to date

Irish Offshore Wind Overview

Ireland's Offshore Wind Potential

- Ireland's sea area (at circa 880,000km^2) is around ten times the size of its landmass, and the country has one of the best offshore renewable energy resources in the world.
- 641GW offshore wind generation potential has been identified in the Government's Offshore Renewable Energy Development Plan II (OREDP II).

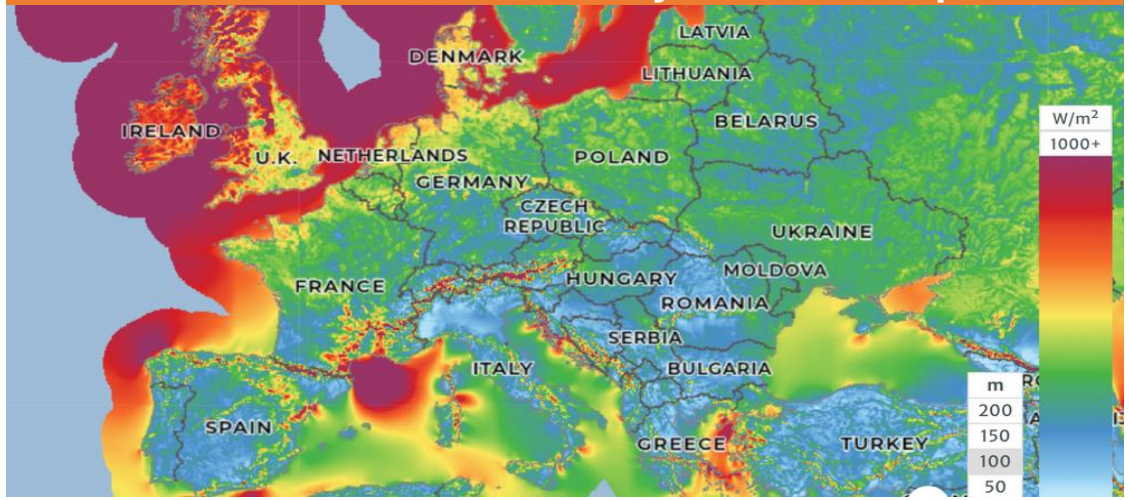
Offshore Wind Targets

- 5GW installed capacity by 2030
- 20GW installed capacity by 2040
- 37GW installed capacity by 2050

Development Pipeline Overview

- **Phase 1:** Special designation given to 6 projects (c.5GW) to advance ahead of other projects – expected to form the basis for the Government's 2030 targets. Seabed exclusivity to be awarded by DECC Minister.
- **Phase 2:** c.56 projects have applied for Foreshore Investigation Licenses (60GW of generation potential). Details for ORESS-2 expected mid 2022.

Mean Wind Power Density across Europe



Offshore Wind Phase	Target	Route to Market	Technology
Phase 1	< 5GW Installed pre-2030	• ORESS 1 Auction • 2022	Fixed bottom
Phase 2	Balance of 5GW Installed pre-2030	• ORESS 2 Auction • Expected 2023	Fixed bottom
Phase 3	2GW In development 2030	• Hydrogen	Floating
Enduring Regime	~30GW deployed post 2030	• TBC	Mix

Cork - Green Energy Valley

Green Electricity

Electrolysis

H2 Storage

Demand

Offshore Wind

- Significant number of offshore wind projects in development off the coast of Cork
- Hydrogen or Ammonia route to market opportunity

Hydrogen

- Oil Refinery, Whitegate and Aghada have significant potential demand for hydrogen
- Wider industry in Cork can available of Hydrogen

Storage

- Storage flexibility will help mitigate the impacts of negative prices and curtailment.
- Would augment actives in Cork Industry.

Cork - Green Energy Valley

Demand Driven

End User Focused

Gas Grid Connection

- The European Hydrogen Backbone report identifies Cork as a hydrogen “valley”
- Potential for blended hydrogen injection.

Electricity Grid Connections

- Electricity grid capacity is a scarce resource.
- Future grid needs to encourage industrial, commercial and domestic demand growth in Cork

Partnerships Options Across

- Offshore Wind
- Hydrogen Production
- Hydrogen Storage

Power Generation

Oil Refinery

Industrial Demand

Transportation

Cork
Green Energy Valley

Electrolysis

Fixed Offshore Wind

Kinsale H2 Storage

Floating Offshore Wind

Cork is an ideal location for the development of a Green Energy Valley

- **Offshore Wind**: Fixed bottom projects developed first, with Floating to follow
- **Electrolysis:** H2 production on land (or possibly offshore)
- **H2 Storage:** Kinsale has potential to cater for heavy H2 demand users
- **H2 Demand:** 2 x Power Stations, Oil Refinery, Pharma Industry, Distillery, Transportation, Export, etc

Cork – Green Energy Valley