How grids will deliver on the energy transition

PARLIAMENTARY WORKSHOP : The EU Green Deal as driver for economic prosperity and the energy transition in Ireland

Liam Ryan
22 May 2024

EirGrid

2023 - 2030: Shaping Our Electricity Future: Plan Led

Whole of System Transitional Challenge for Ireland

Supply

- Offshore Wind (+ 5 GW)
- Onshore Wind (+ 4.5 GW)
- Solar (+ 5.5 GW)
- Microgen (+ 2.5 GW)
- Conventional (+ 2.2 GW)

Networks

Engagement

Operations

Markets

Shaping our electricity future

+ c. 350 Network Reinforcements
+ c. 25 Smart Network Devices
+ System Operated Transformation
+ Electricity Market Transformation
+ 4 HVDC Interconnectors
+ 2.8 GW Long Duration Storage
+ Over 20% Demand Flexibility
+ 10 GVAs Low Carbon Inertia Services

Demand (+50%)

- Large energy users (~ 1.6 GW)
- Electric vehicles (~ 950 k)
- Heat pumps (~ 600 k)
- Social & Economic Growth

95% of instantaneous electricity from Wind and Solar

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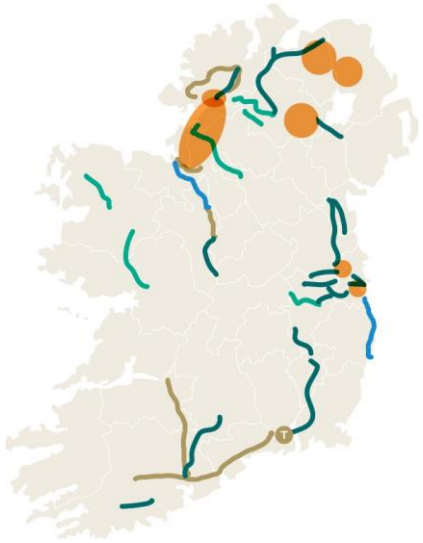
Shaping Our Electricity Future
Achievements



SOEF v1.1 published in July ‘23

Manage System when Frequency changes by 1Hz/s

75% of instantaneous electricity from Wind and Solar

Min Sets reduced to 4 in Ireland

Issued first Low Carbon Inertia Services contracts in Apr ‘24

Network Infrastructure

- On average €1 Billion capital investment in transmission reinforcement per annum for last 3 years
- In 2023 - 22 planning consents granted and 44 exempt development decisions approved
- In 2023 - 40 transmission system projects handover to the TAO, ESBN for construction - 26 projects energised
- 410 MW renewables connected in 2023, > 600 MW renewables planned in 2024 and > 1GW renewables in 2025
  200 MW TSO Battery Energy Storage Systems connected in 2023
- Dublin Master plan connecting renewables, demand growth, and flexibility in operating the power system
- Celtic (700MW) and Greenlink (500MW) Interconnectors on track
- Establishing renewable energy parks
- Radically change our engagement approach with the energy citizens and communities

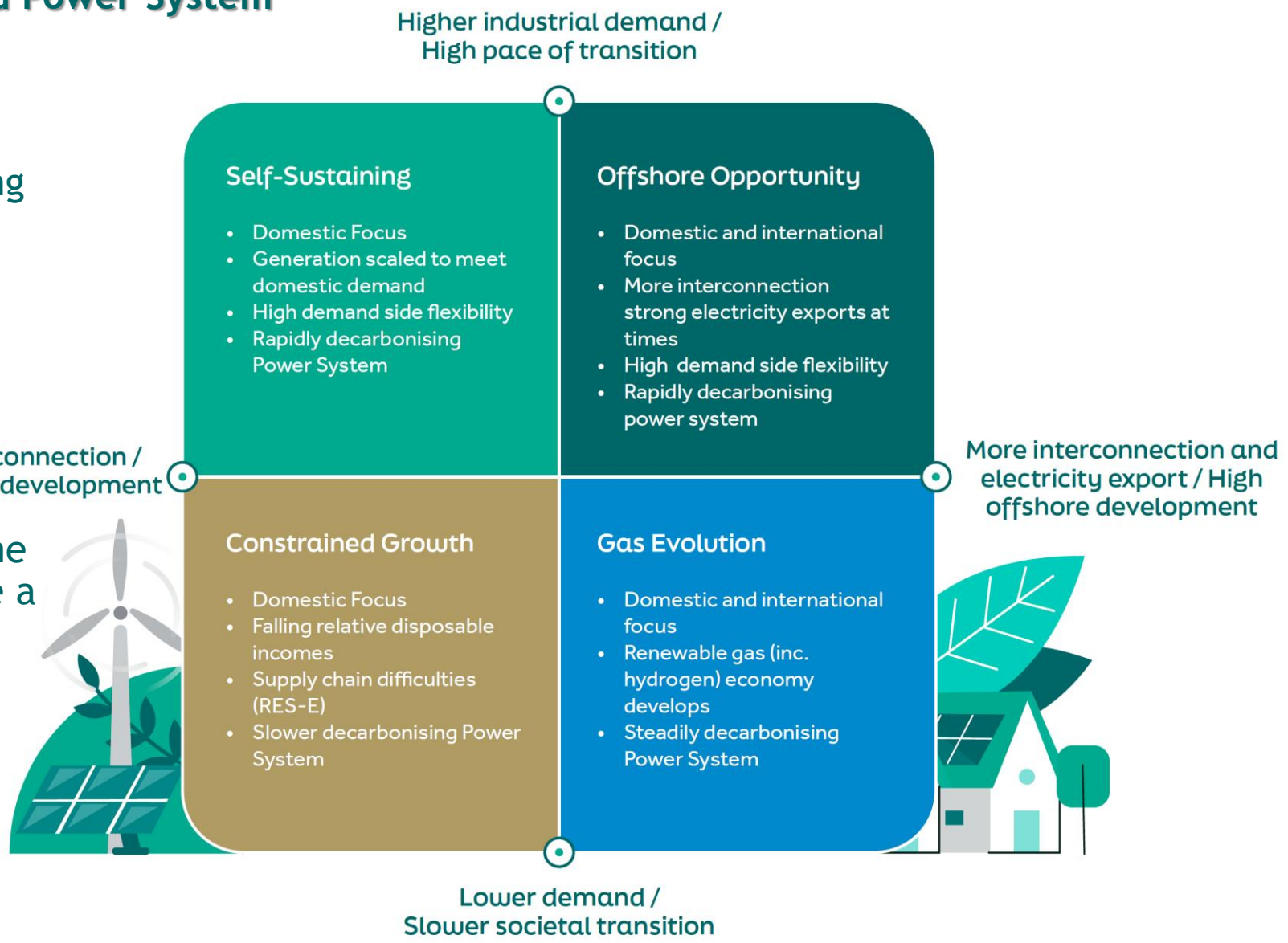
Markets

- Scheduling & Dispatch programme in flight
- Future System Service Arrangements Plan and Daily Day Ahead Auctions design consultation published
- ACER approved the SEM-FR Capacity Calculation Region proposal

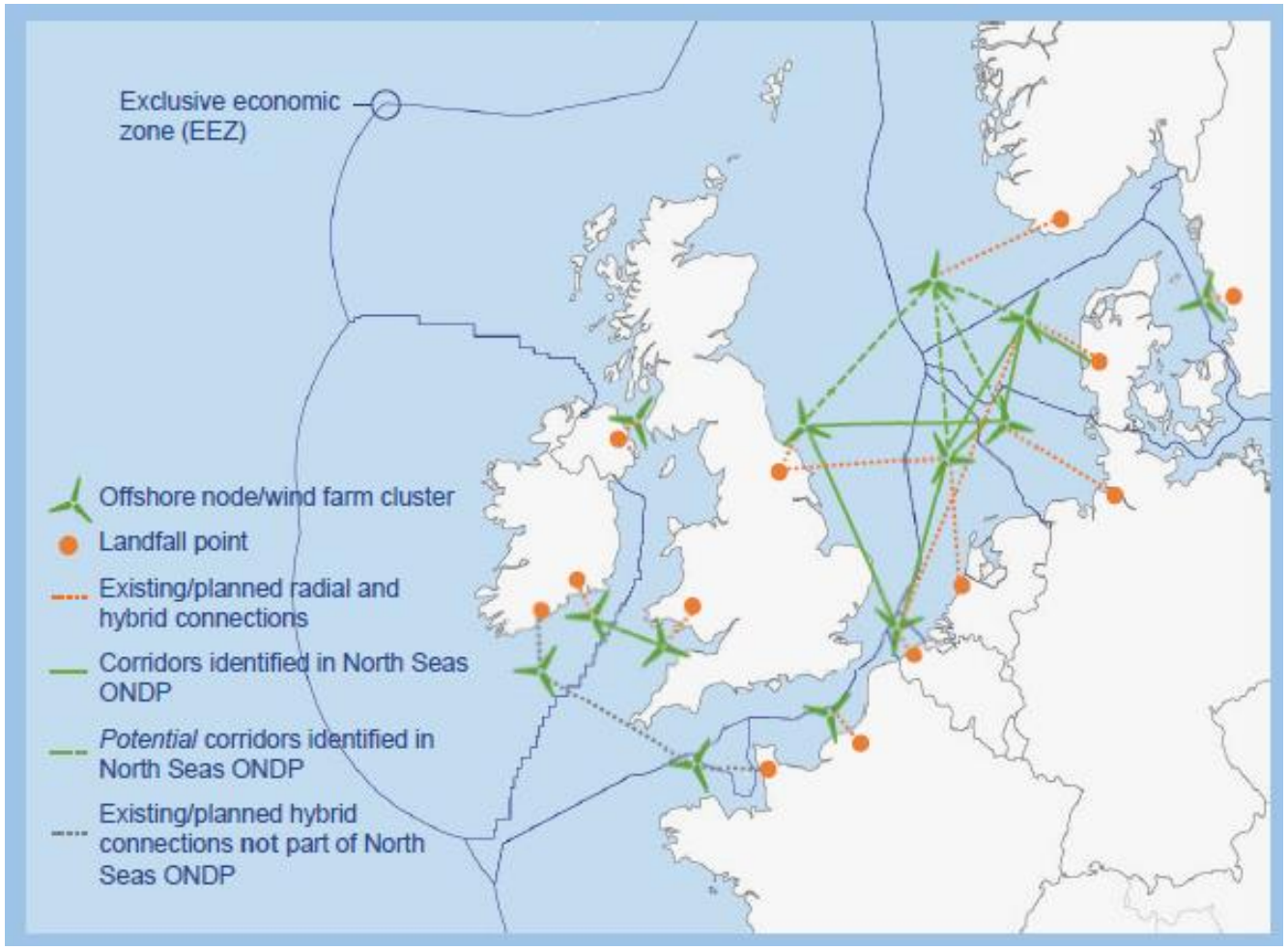
Beyond 2030: Tomorrow's Energy Scenarios 2023

Decarbonised Power System

- Aligned with Government non-binding renewable targets to 2050
- TES 2023 explores scenarios with challenging boundary conditions
- We expect that the resulting outcome will lie within the boundaries and be a mix of scenarios
- Working with ENTSO-E on Offshore Network Development Plan



EU Offshore Network Development Plan - (ONDP)



- An initial step to identify a pan-European offshore electricity transmission network
- Legislated through the EU's TEN-E requirements, delivered by ENTSO-E
- Development in 5 sea basins to meet EU member state offshore goals for 2030, 2040 & 2050
- Simulations to assess transmission capacity between areas
- Published at Offshore Network Development Plans (entsoe.eu)

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Summary

- The Transmission Grid will deliver, we have changed how we:
    - Plan
    - Deliver
    - Operate
    - Engage
    - Innovate

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Questions

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All-Island Power System Overview

System

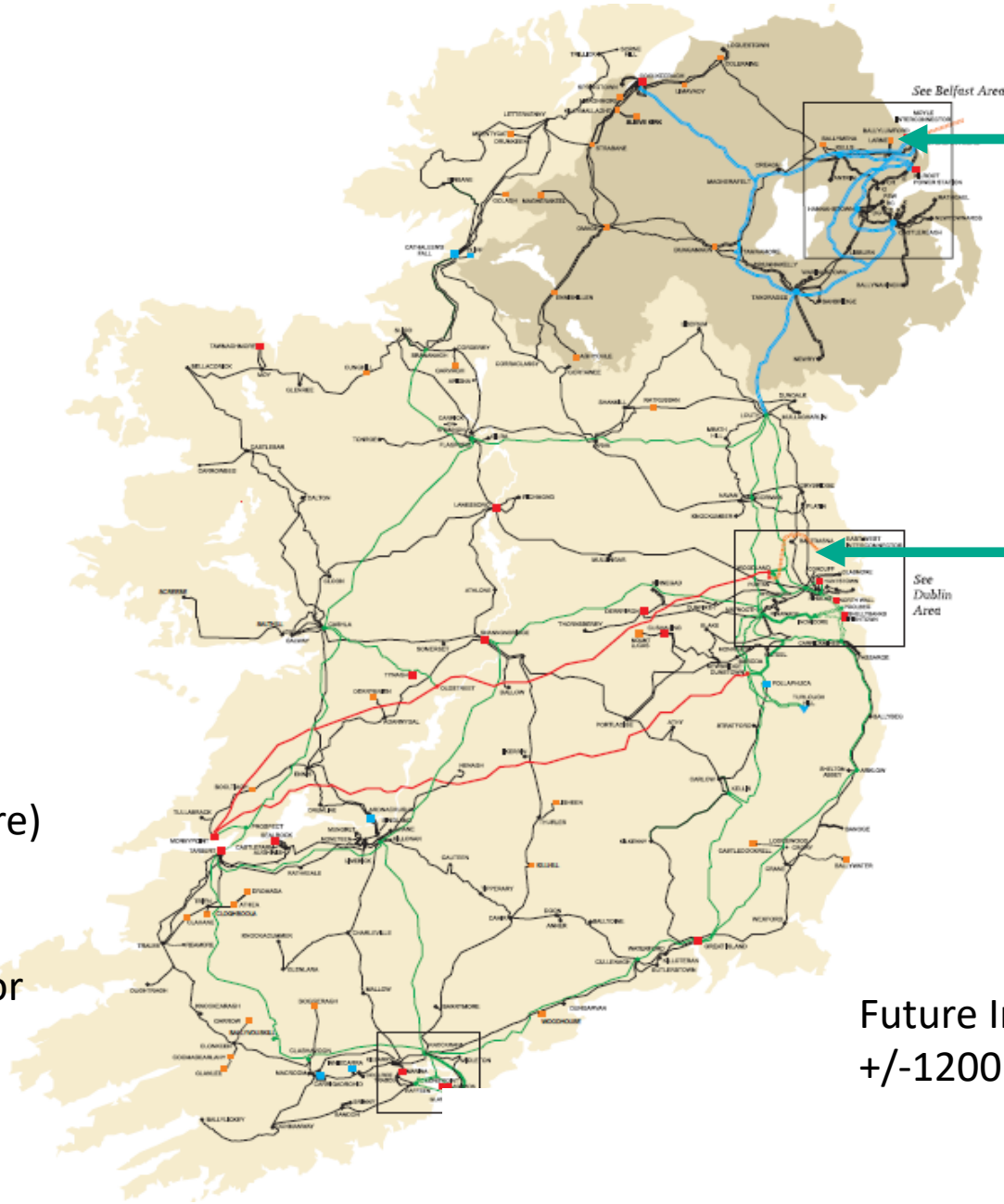
- Two Jurisdictions / Two TSOs
- Single Synchronous Area & Market

Demand

- Peak Demand: 7.0 GW (5.6 GW Ire)
- Minimum Demand: 2.5 GW

Generation

- Installed Wind: 6.0 GW
- Peak Wind: 4.7 GW (Dec 2023) (3.6 GW Ire)
- Solar growing (1.2% of energy in 2023)
- 75% of instantaneous electricity comes for wind and solar



Moyle
+/- 500 MW
HVDC (LCC)
to Great Britain

EWIC
+/- 500 MW
HVDC (VSC)
to Great Britain

Future Interconnection
+/-1200MW

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