

# Infrastructure for a European Industry

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# EirGrid

- TSO in Ireland and Northern Ireland
- Market Operator on the island of Ireland
- Ensure secure electricity supply
- Delivering electricity Infrastructure
- World Leader in Smart Grids
- Active in Europe



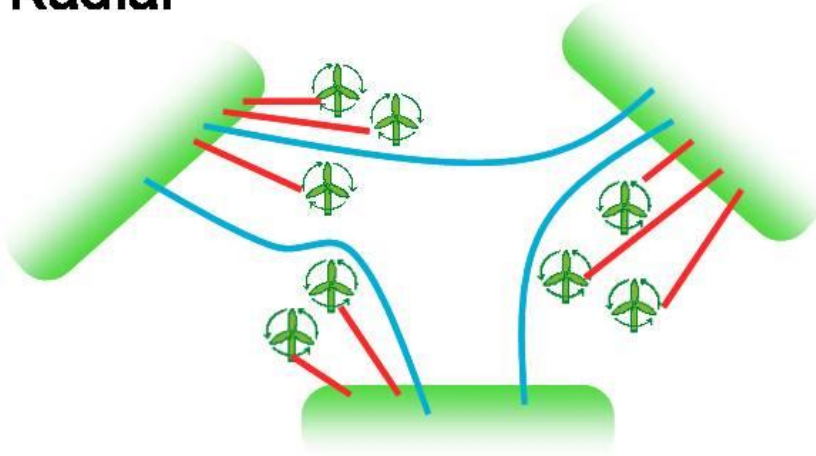
# Overview

- Designing Offshore Grid Infrastructure
- North Seas Offshore Grid Initiative
- Links to Onshore Transmission
- Delivering Infrastructure
  - Grid West
  - East West Interconnector

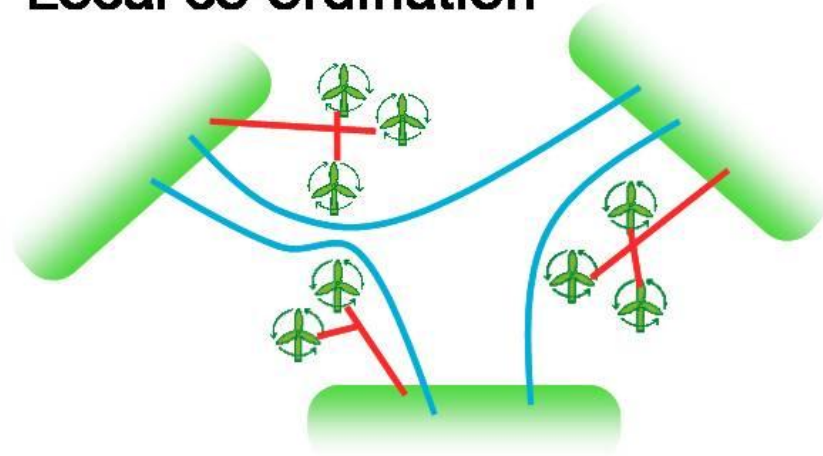


# How to connect offshore wind?

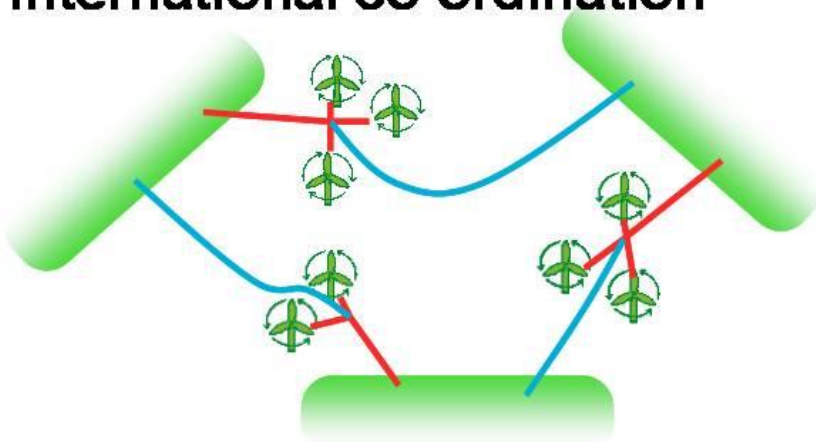
**Radial**



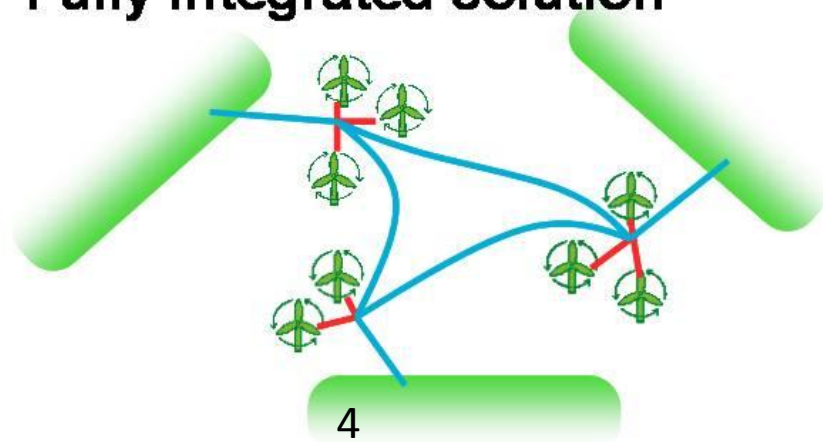
**Local co-ordination**



**International co-ordination**



**Fully integrated solution**



# Offshore Grid Study

Analysis of the Appropriate Architecture of an Irish Offshore Network

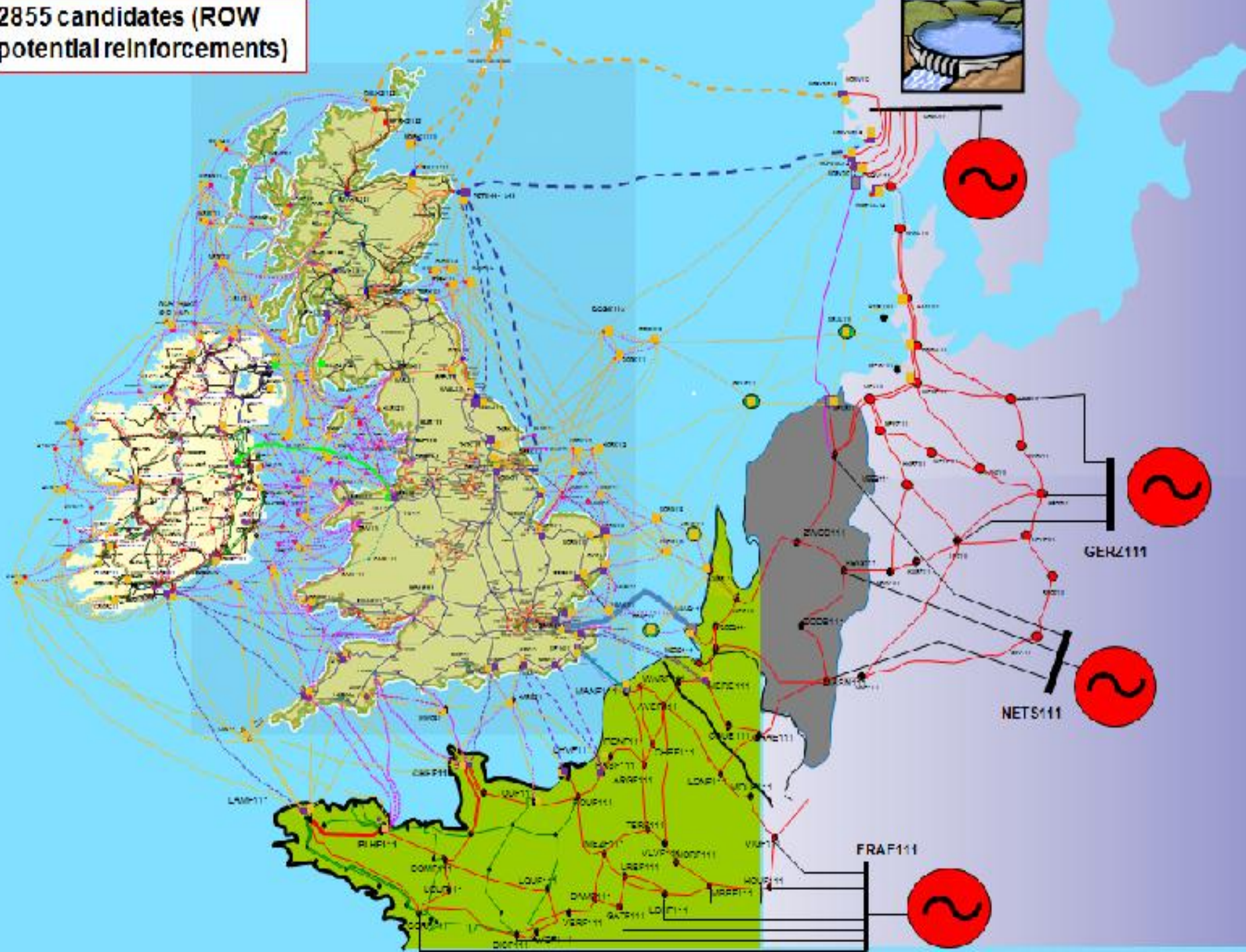
Executive Report



- What will be the structure of an offshore grid?
- Identify Plans which:
  - Optimise overall system costs
  - Maintain system reliability
  - Allow offshore power delivery
- Uses cutting edge software

*Advancing the Technological Development to Harness Offshore Power*

2855 candidates (ROW potential reinforcements)





# Offshore Study Conclusions

1. Incremental Network development possible
2. Meshed network is optimum
3. Offshore/Onshore network are symbiotic
4. Interconnectors will optimally develop both from shore and offshore
5. Smart grid devices enhance network flexibility and minimise scale of offshore network (c.25%)
6. Reinforcements onshore consistent to proposals i.e. GRID25, Gate 3



# North Seas Countries' Offshore Grid Initiative (NSCOGI)

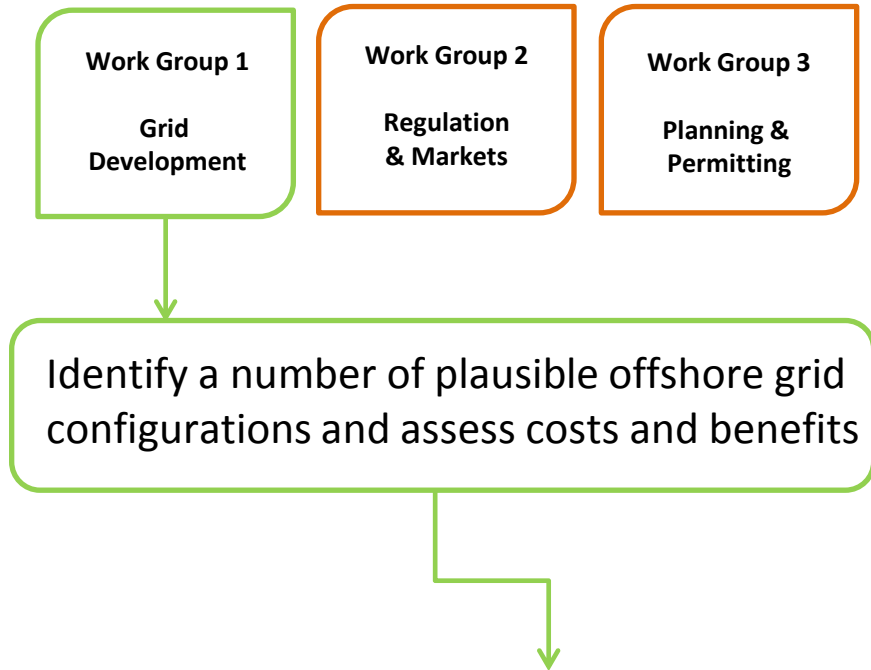
- NSCOGI MoU signed by 10 countries: Belgium, Denmark, France, Germany, Ireland, Luxembourg, the Netherlands, Norway, Sweden and the UK
- NSCOGI will offer *“a framework for regional cooperation to find common solutions to questions related to current and possible future grid infrastructure developments in the North Seas”*



- Work Groups led by Governments, assisted by regulators and TSOs



# North Seas Countries' Offshore Grid Initiative (NSCOGI)

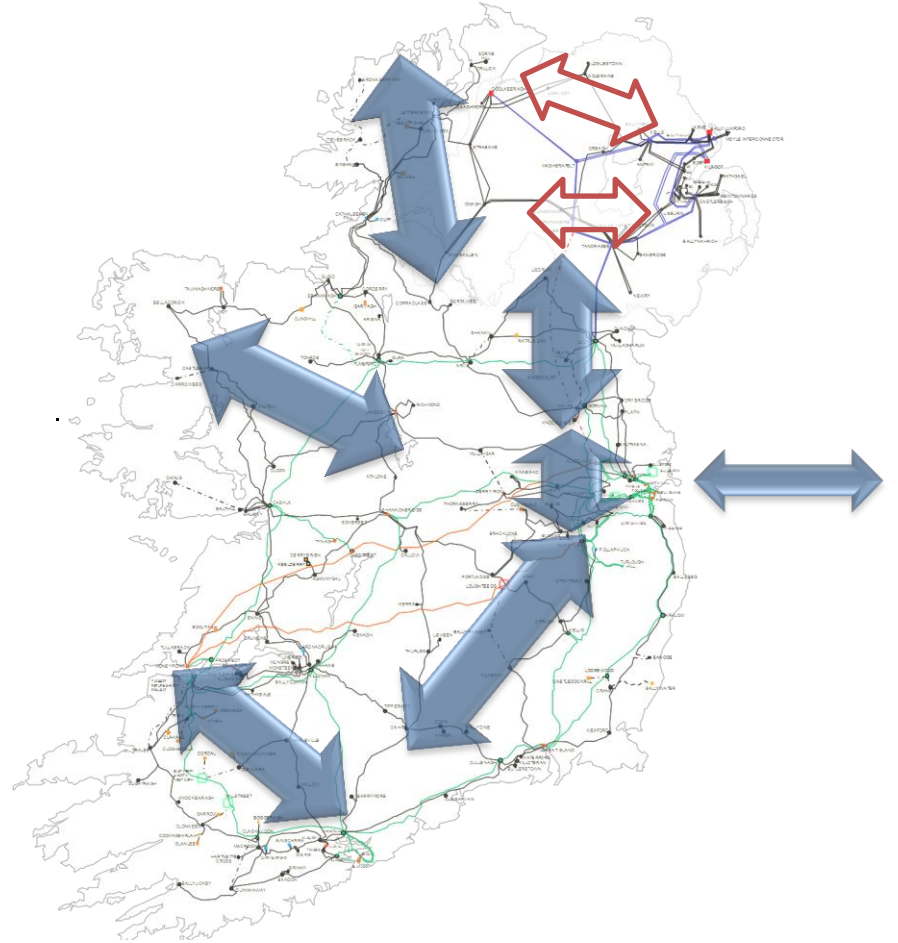
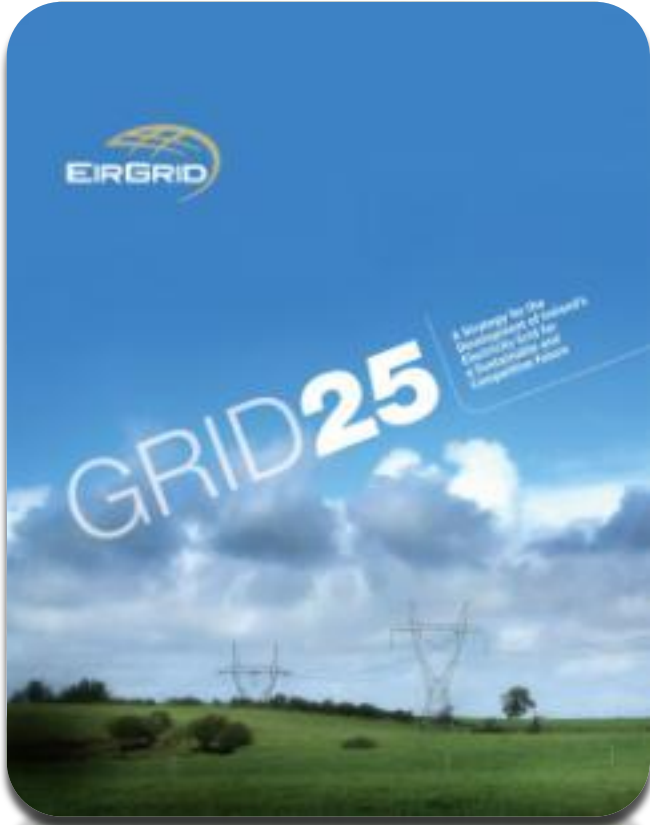


**EirGrid leading this work using our ESPAUT offshore grid model**

**EirGrid also one of three TSOs doing the market modelling**



# GRID25








# The Grid West Project

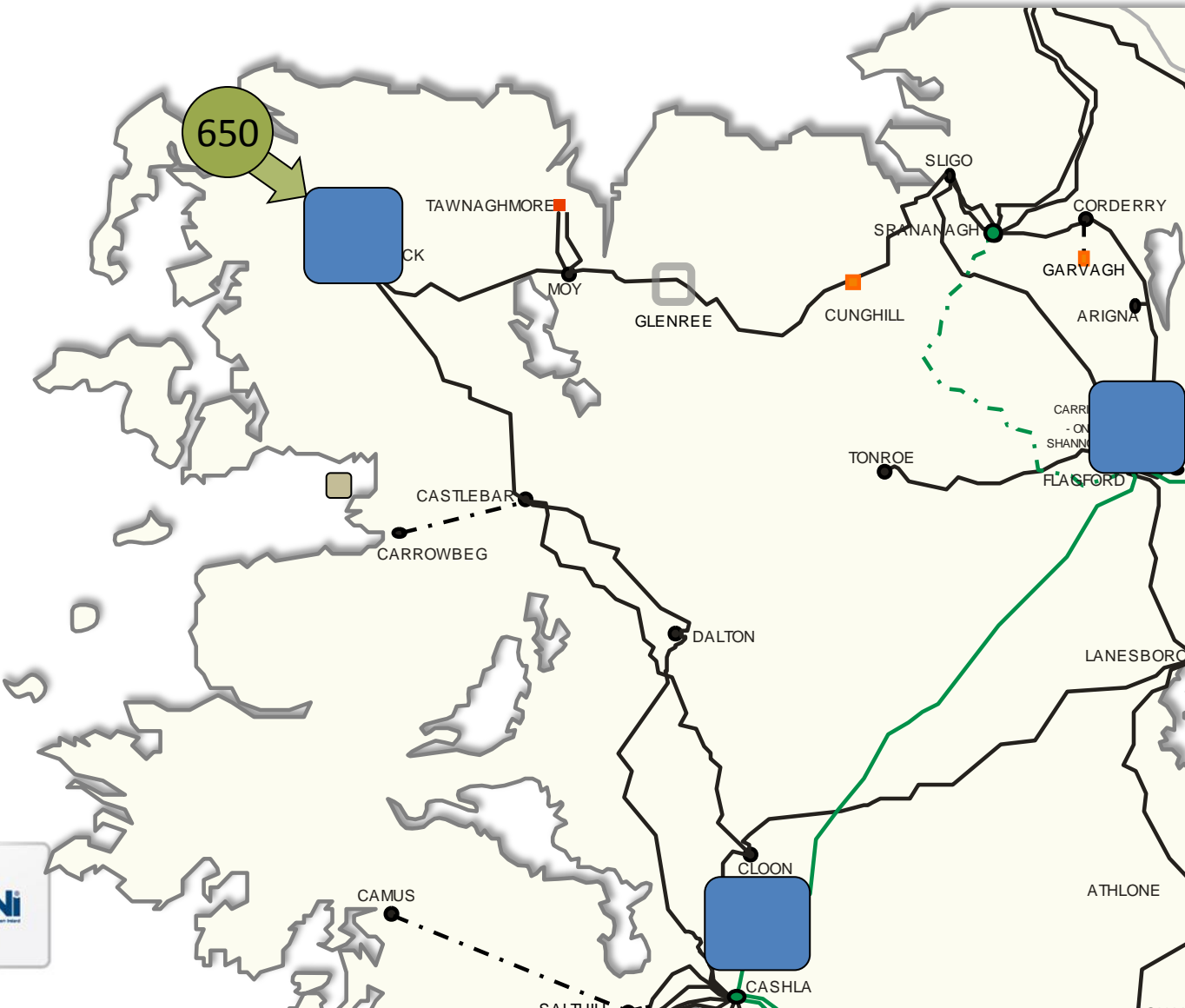
## Electricity Transmission Scheme in the West

- Delivering 21st century energy infrastructure to the West of Ireland
- Connecting renewable energy
- Facilitating job creation and economic recovery

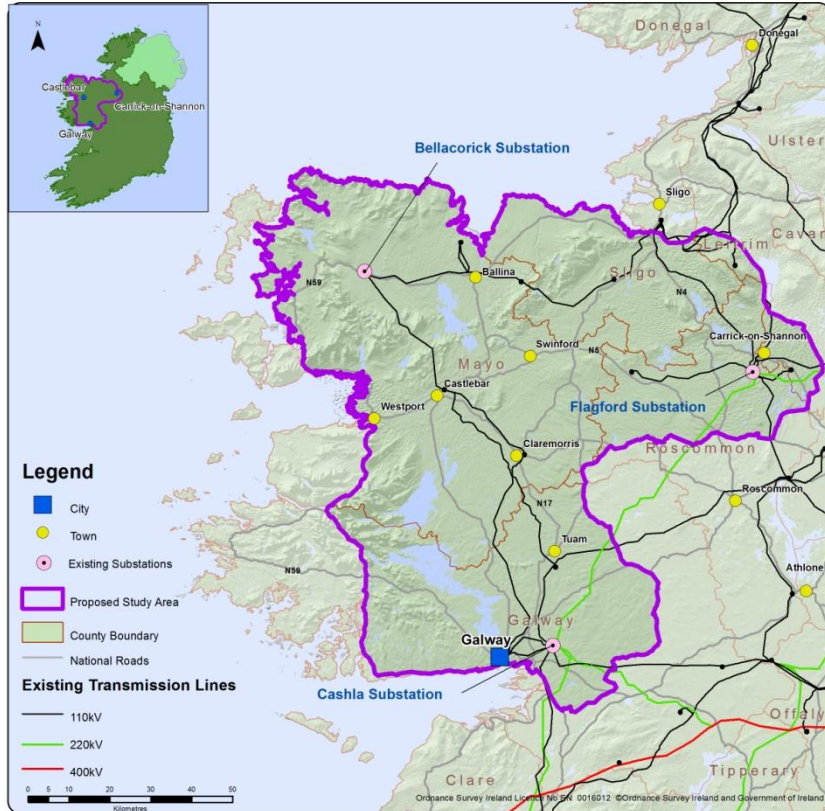


# Grid West - Connecting Renewables

-  Power (MW)
-  Existing 110kV lines (to be updated)
-  Proposed connection options for new 400 kV circuit



# Study Area and Consultation



Publish the Study Area are in local papers

A dedicated website  
[www.eirgridprojects.com/projects/gridwest](http://www.eirgridprojects.com/projects/gridwest)

A lo-call information line,  
1890-940802

Local offices-first Castlebar then other centres

Open days in centres across the region



eastwest  
interconnector



# Project Overview

# Project Information

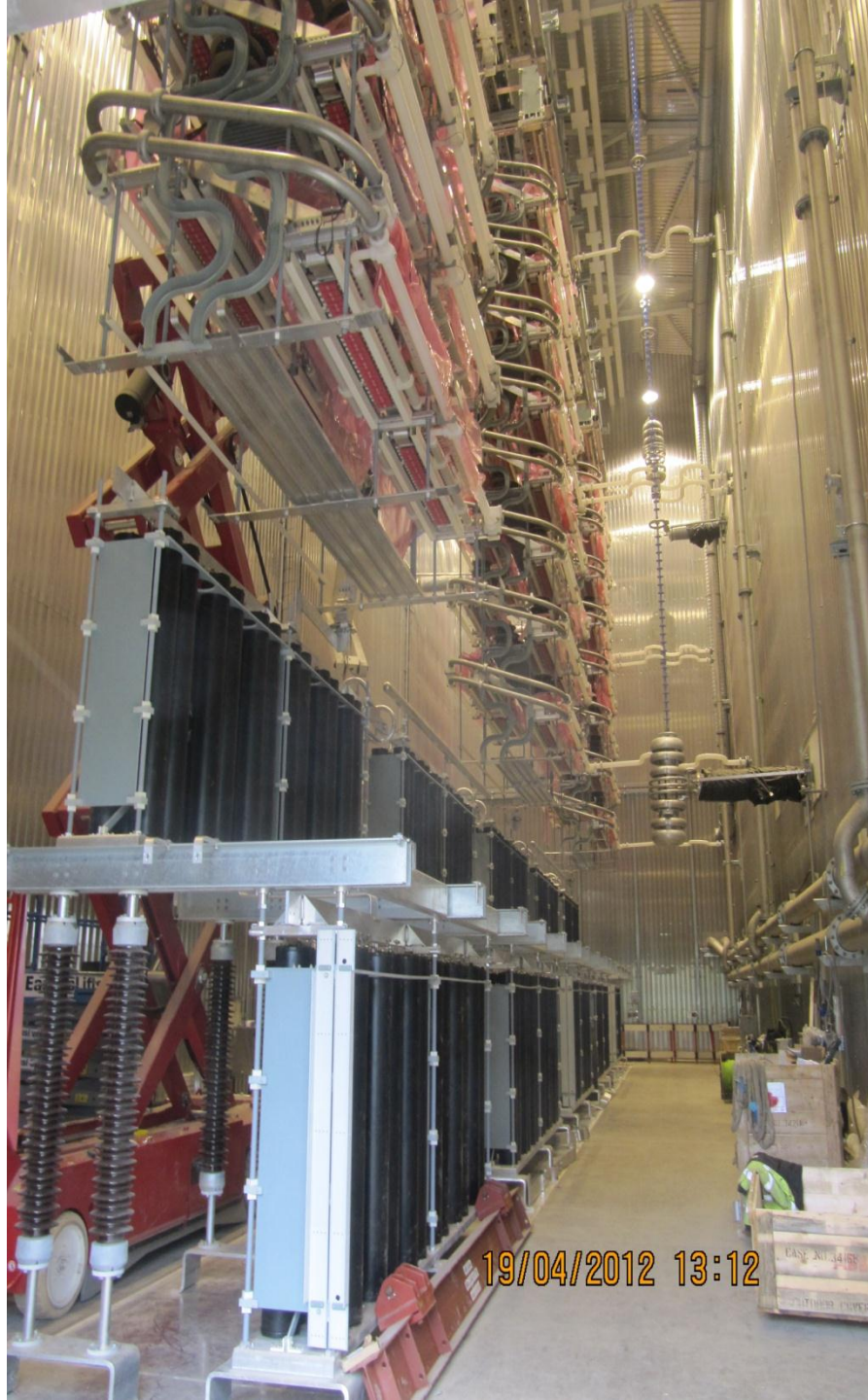
- Key Strategic Project
  - Priority Interconnector Project - DG TREN January 2007
  - ‘..Critical National Strategic Importance..’ – NDP 2007-2013
  - ‘..delivery at earliest opportunity’ i.e. 2012
- Project Parameters
  - HVDC
  - 500MW
  - 182km Subsea, 80km Land Routing + 2 Converter stations
- HVDC Technology
  - Well established method for high capacity electricity transmission between power systems
  - Two types: Voltage sourced conversion and Line current commutation





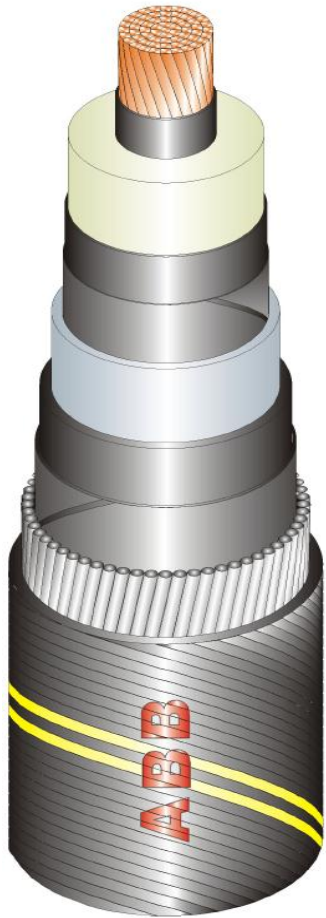
# Portan HVDC Converter Station

# Valve Hall

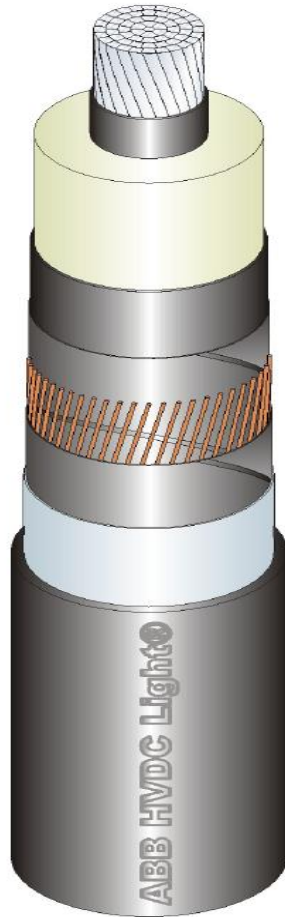


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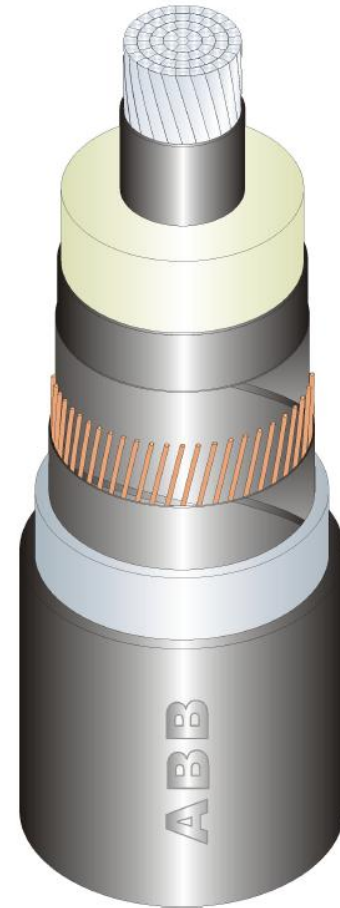
# ABB HVDC Light© - Examples of Cables



DC sea cable



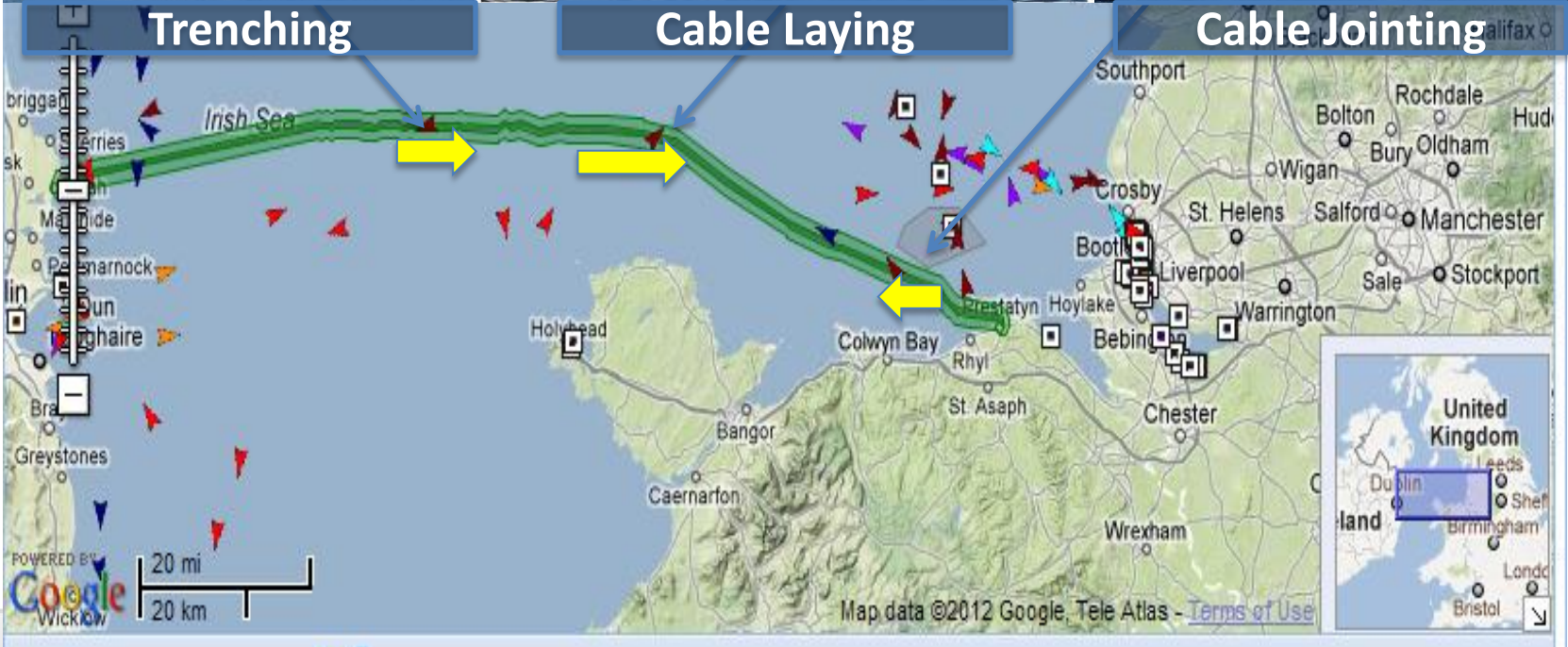
DC land cable



AC 400kV cable



# Marine Works May 2012



# LANDFALL





**HVDC Converter Site  
Shotton**

- On Schedule for Completion to original timeline and budget in September 2012
- Go Live - October 1<sup>st</sup>
  - Auctions fully subscribed



