



Offshore Grid Planning

Mark Norton
Manager Technology and Standards, EirGrid

10th February 2012

EirGrid Offshore analysis and timeline



Offshore Grid Study

- Examines questions around appropriate structure of offshore grid
- Sept 2009 – Jan 2011

Offshore Grid Studies [2]

- Package of studies examining specific technical issues
- Examines Technological solutions to problems identified
- April 2011 - March 2012

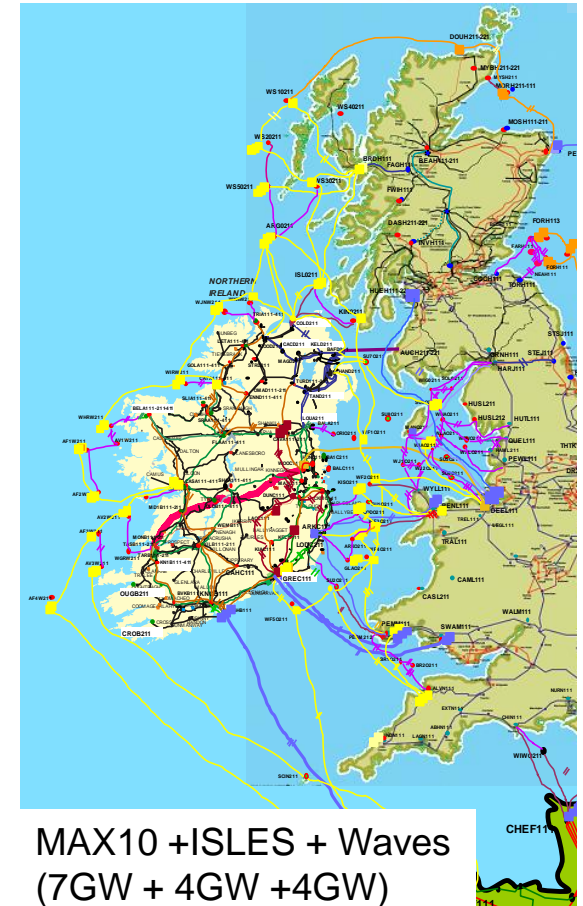
NSCOGI

- Entsoe request EirGrid undertake study for North Seas study
- Inform NSCOGI group on appropriate grid structure for North Seas area
- Oct 2011 – May 2012

Correlation study

- Examines impact of mixed renewable offshore resources
- Looks at combination of Wind, Wave and tidal zones or mixed wind, wave and tidal within a zone
- Feb 2012 – Oct 2012

Offshore Grid Study sample results



Offshore Study Conclusions



1. Incremental Network development possible
2. Meshed network is optimum
3. Offshore/Onshore network are symbiotic
4. Reinforcements onshore consistent to proposals
5. Interconnectors will optimally develop both from shore and offshore
6. Smart grid devices enhance network flexibility and minimise scale of offshore network
7. Mixed AC and DC cable network most likely
8. Voltage level at least 220kV
9. Offshore transmission stations allow for future expansion

Outcome and Interaction



National Standards and European Law

- Transmission System Security and Planning Standards (TPC)
- Requirements for Generators European Network Code

Policies

- Offshore cable policy
- Offshore station policy
- x3 Gate 3 offshore grid connection offers

Standards

- Offshore Cable standard
- Offshore station standard

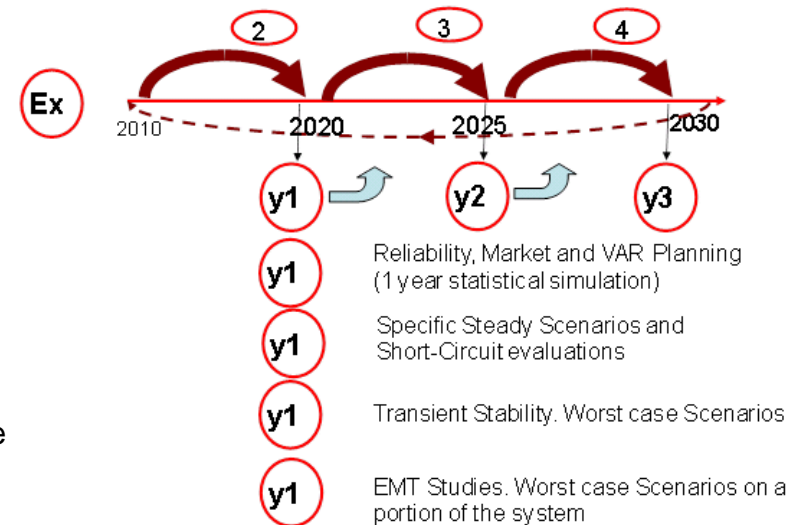
Associated work

- Conjoining with TIMES/PRIME models

Offshore Grid study [2]



- Core tool can minimise total capital cost, losses and energy production in one screening process
- Required extra detailed analysis would ideally be incorporated - second phase of works looks at delivering this
- Reactive (VAR) power study
 - Automatically optimises reactive power deployment as part of the systematic process
- Harmonic and resonance (EMT) analysis study
 - Automatic screening for harmonic and resonance issues
 - Confirmation that existing networks in results from EirGrid Offshore Grid Study have no issues
- Market Model comparator
 - Output of conjoining with TIMES/PRIME



NSCOGI and Correlation study



NSCOGI

- Request from Entsoe to do modelling for NSCOGI
- Request because of new modelling capability
- Outcome to provide a network model for European offshore scenarios in North Seas area

Correlation Study

- Examines the impact of offshore grid study results in assuming different generation mixes around Ireland
- Will examine:
 1. Principally all wave west coast and all wind east coast scenario and tidal as per Irish SEA
 2. Mixed wave and wind in both the west and east coast
- Focussing on:
 1. Whether reusing of assets for different generating technologies is desirable
 2. Whether the diversity in renewable energy has any impact on network design



Thanks for your attention