



Grid Issues including Costs and Timescales

Rory Mullan

Meitheal na Gaoithe Conference

16th November 2007

Econnect Ireland - Energising Renewables

- Grid Connection Feasibility
- Connection Applications
- Electrical Design
- Grid Code Compliance
- Commercial and Regulatory
- Technical Advisor/Client Engineer

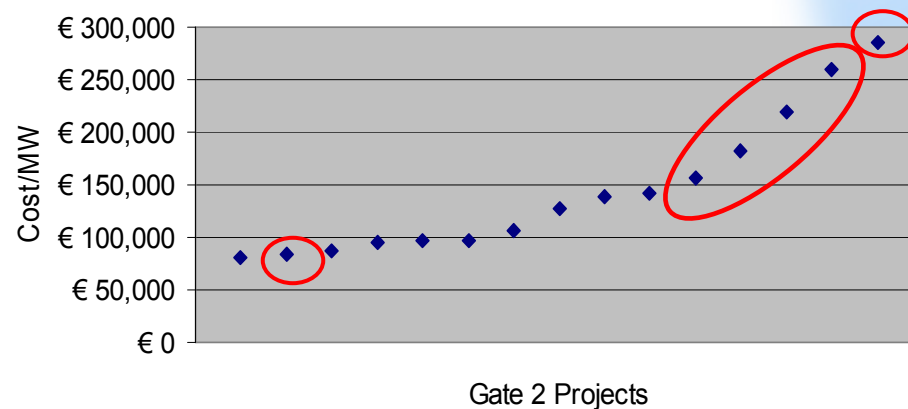


Agenda

- Connection Costs
- Connection Timelines
- Lessons from Gate 2
- Constraint
- Curtailment
- Conclusions

Connection Costs

- Gate 2 Connection Costs

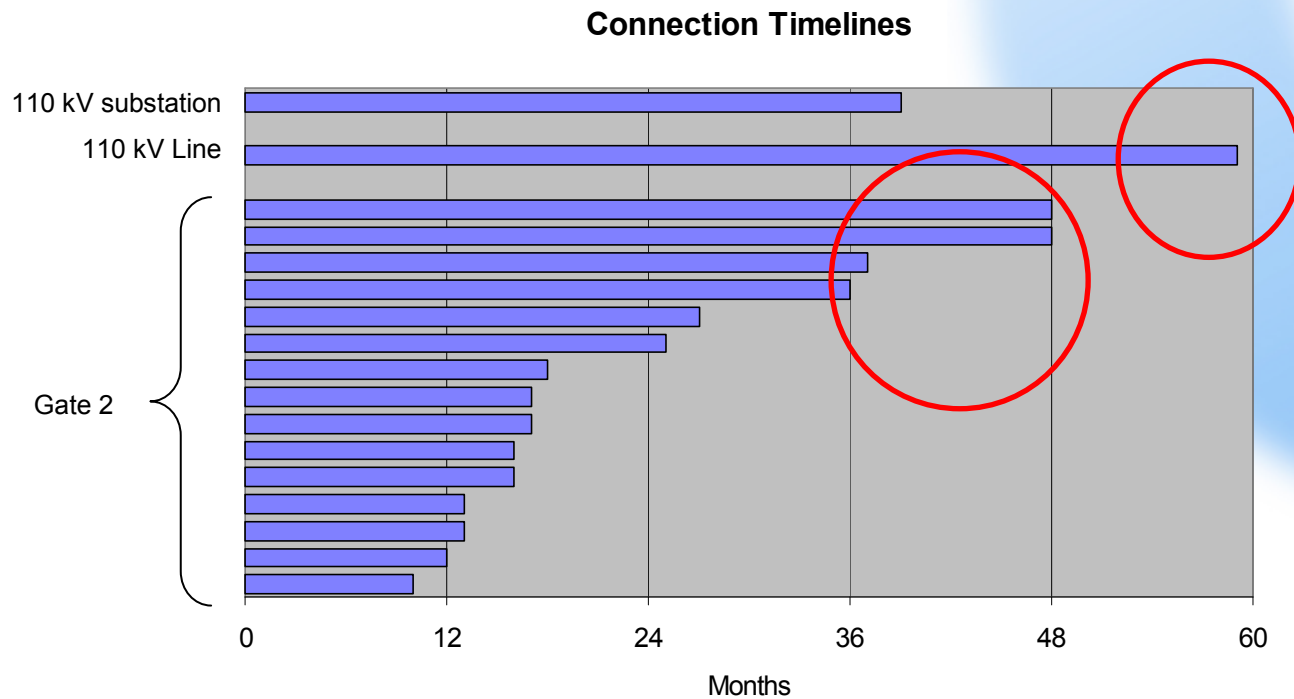


- Based on LCTA

- Additional Pass through Costs:
 - Wayleaves
 - Civil costs
- Increasing use of underground cables rather than overhead Line

Gate 2 Timelines

- Gate 2 Connection Timelines



- Based on non-contentious planning and wayleaving

- Increasing risk of delays relating to wayleaving
- All risks associated with delays are with developers

Lessons being learnt from Gate 2

- For some project there will be high costs, long timelines and high risks for the developer
- Need to maximise use of the existing distribution network
- Need for greater communication between ESB Networks and the developer during the process, such as a connection method meeting.
- Need to review the Distribution and Transmission Planning Criteria

Define Constraints

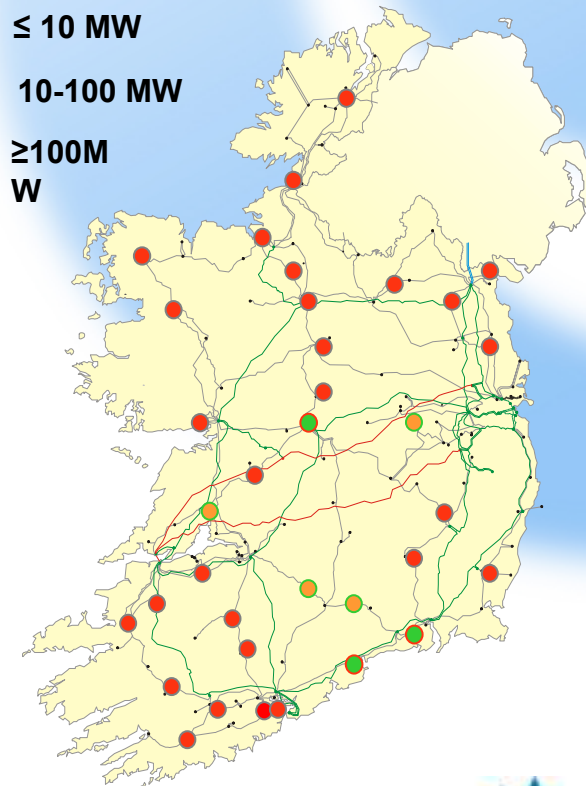
- Existing network is 'saturated' in areas
- New generators trigger transmission deep reinforcements
- Deep reinforcements take 2 years+ to complete
- Non-firm access until deep reinforcements are complete resulting in a period of constraint

Available Network Capacity 2008

● ≤ 10 MW

● 10-100 MW

● ≥100M
W



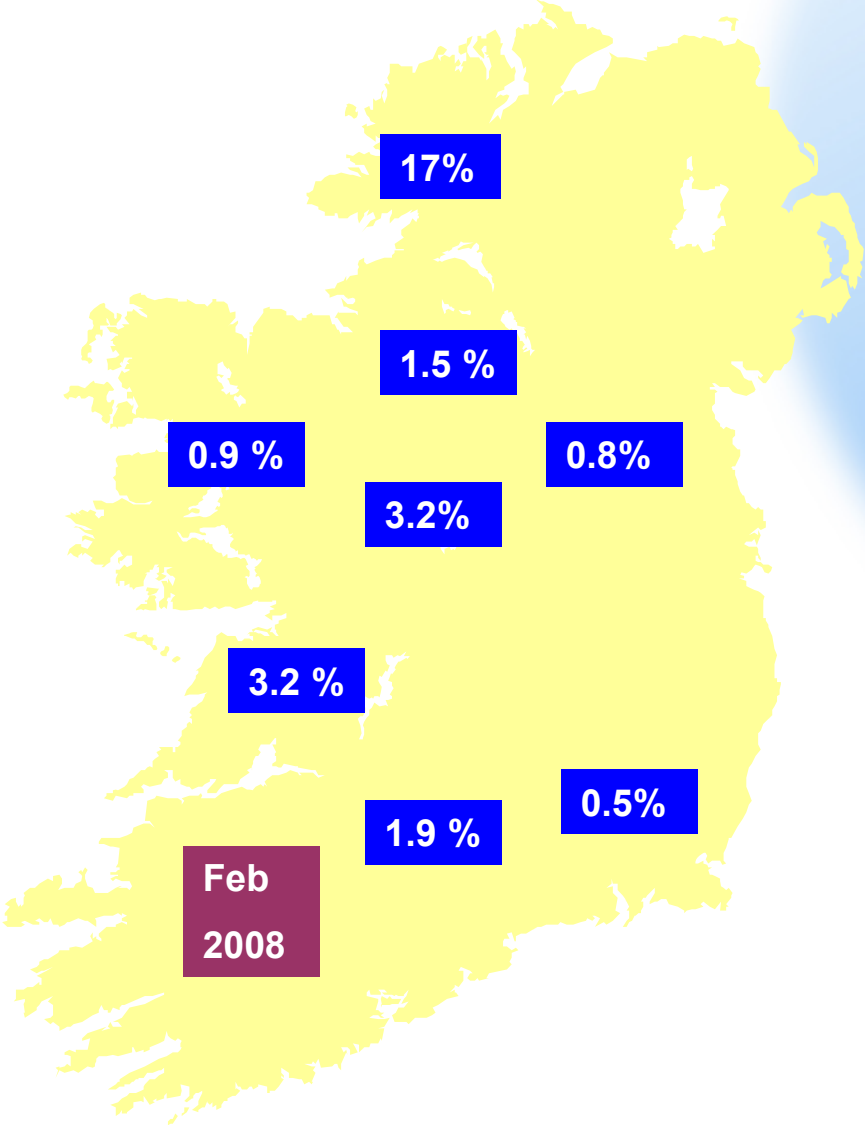
Data from EirGrid Forecast Statement 2007



Econnect

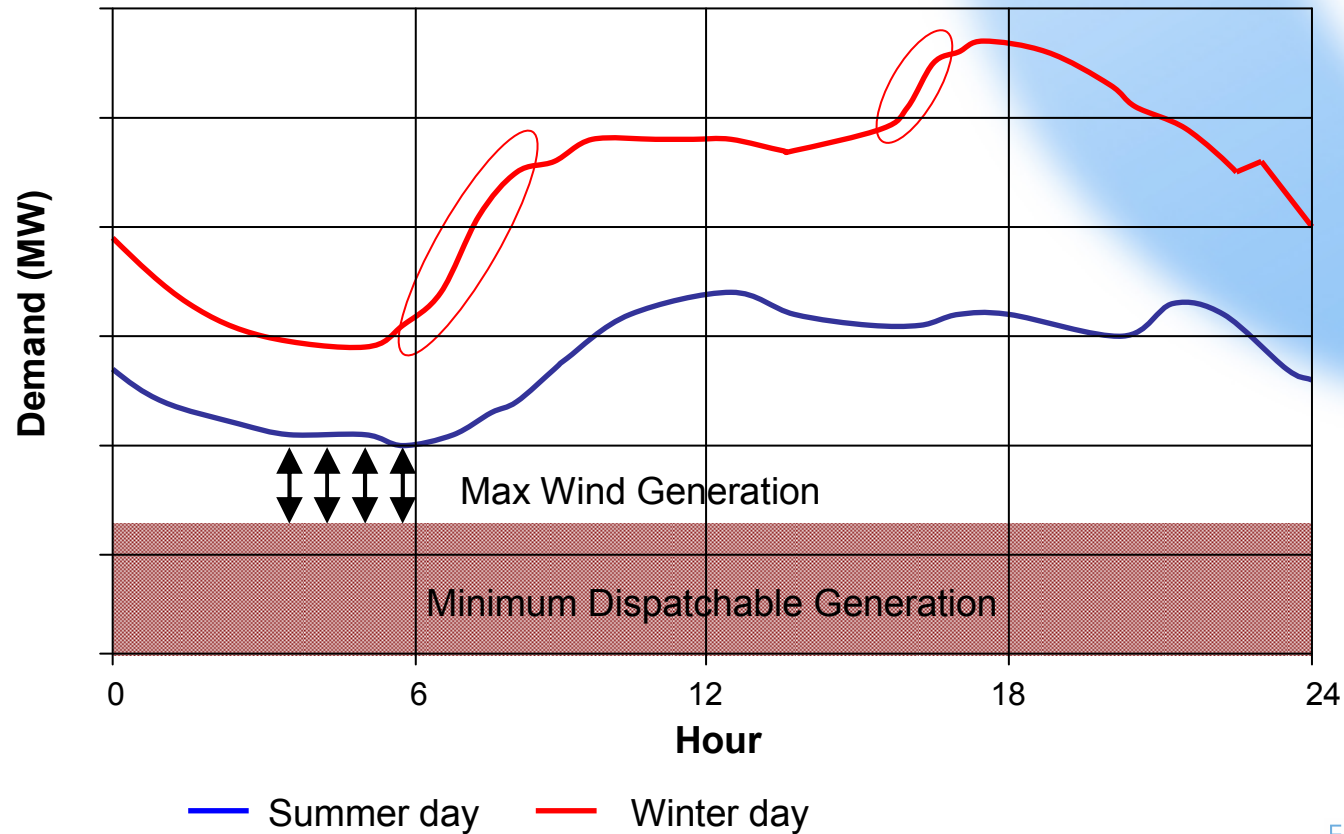
Engerising Renewables

Gate 2 Constraints



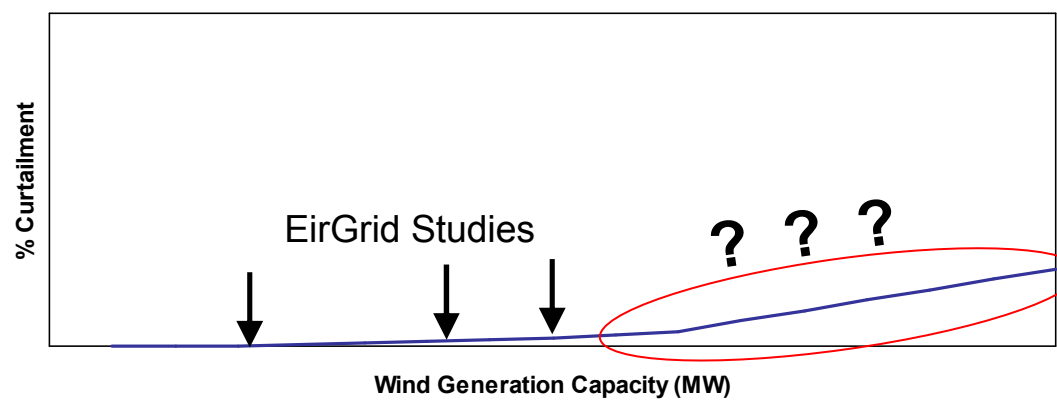
Define Curtailment

- **Curtailment** is the restriction of the output of wind generation to maintain system security due to its intermittent nature
- System wide issue



Potential Levels of Curtailment

- To-date no instances of curtailment....yet!



Curtailment Studies

- EirGrid - 1100 MW in 2010
- EirGrid - 2000 MW in 2011
- All Ireland Grid Study - Work stream 2

Conclusions

- For some project there will be high costs, long timelines and high risks for the developer
- Need to maximise use of the existing distribution network
- Need for greater communication between ESB Networks and the developer during the process, such as a connection method meeting.
- Need to review the Distribution and Transmission Planning Criteria
- Urgent need for consultation on Constraint & Curtailment Policy

Contact Details

Rory Mullan

Econnect Ireland

Tel: +353 (0) 1 4693 375

www.rory.mullan@econnect.com