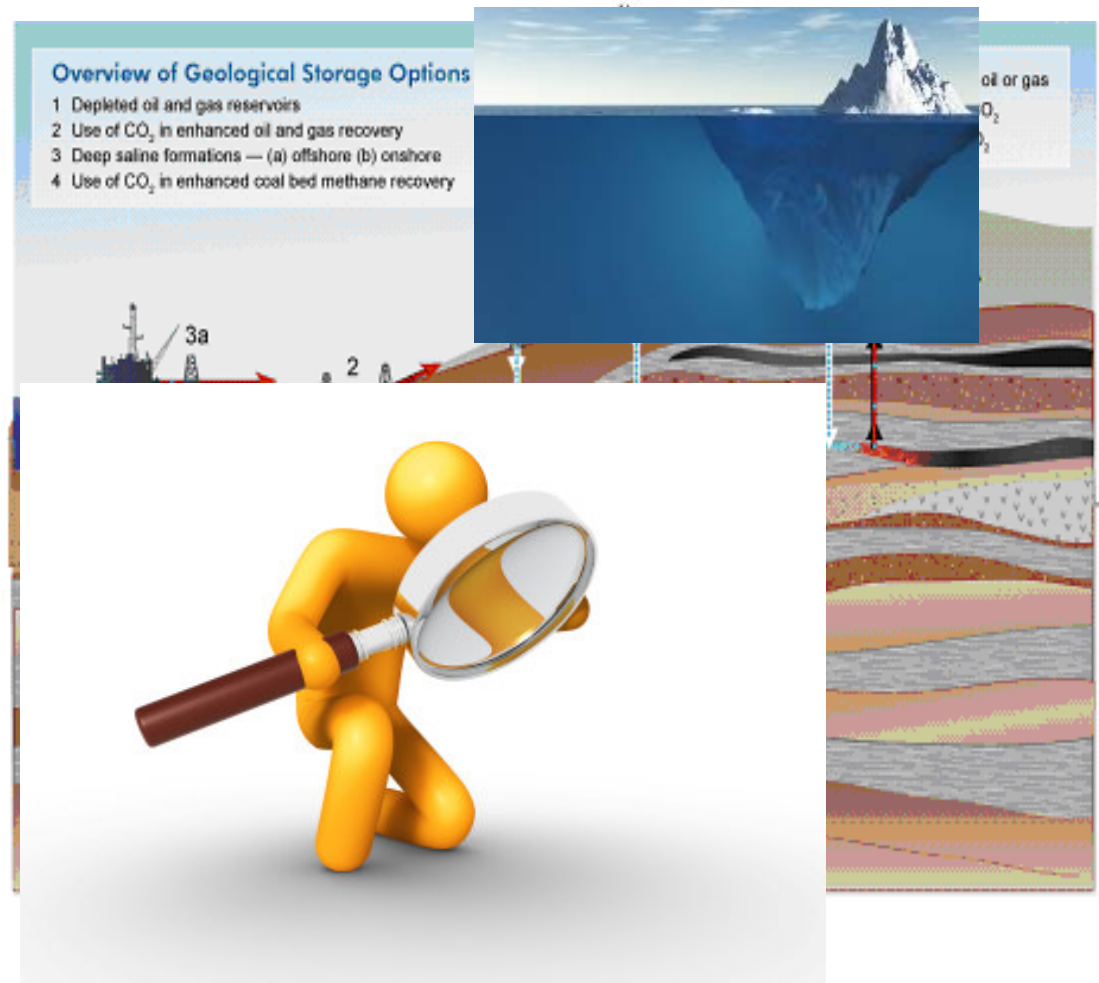
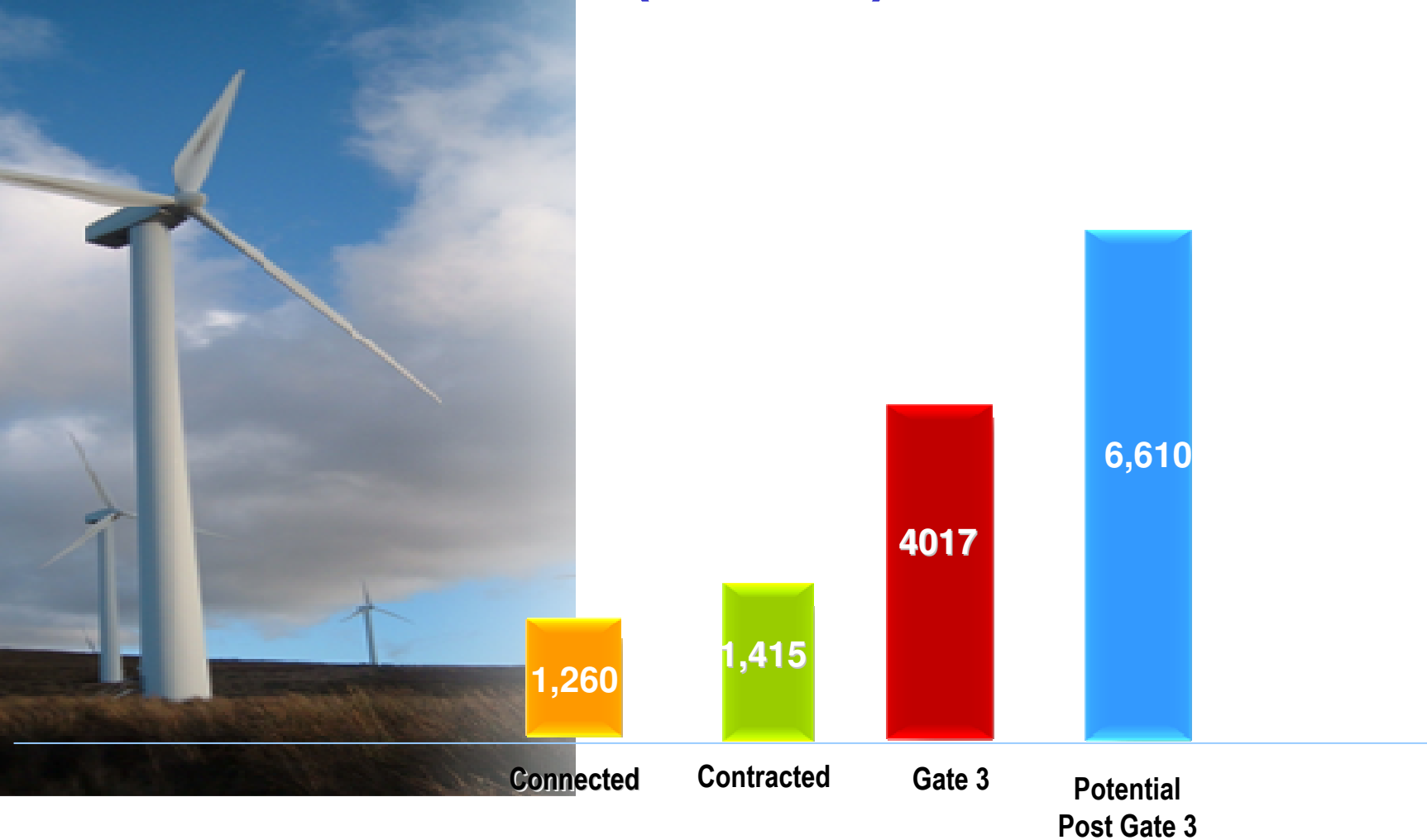


Delivering a successful CCS project - Challenges

- o Sound Technical decisions
- o Suitable storage and transport facilities
- o Long term management regime in place for stored CO₂
- o Broad acceptance

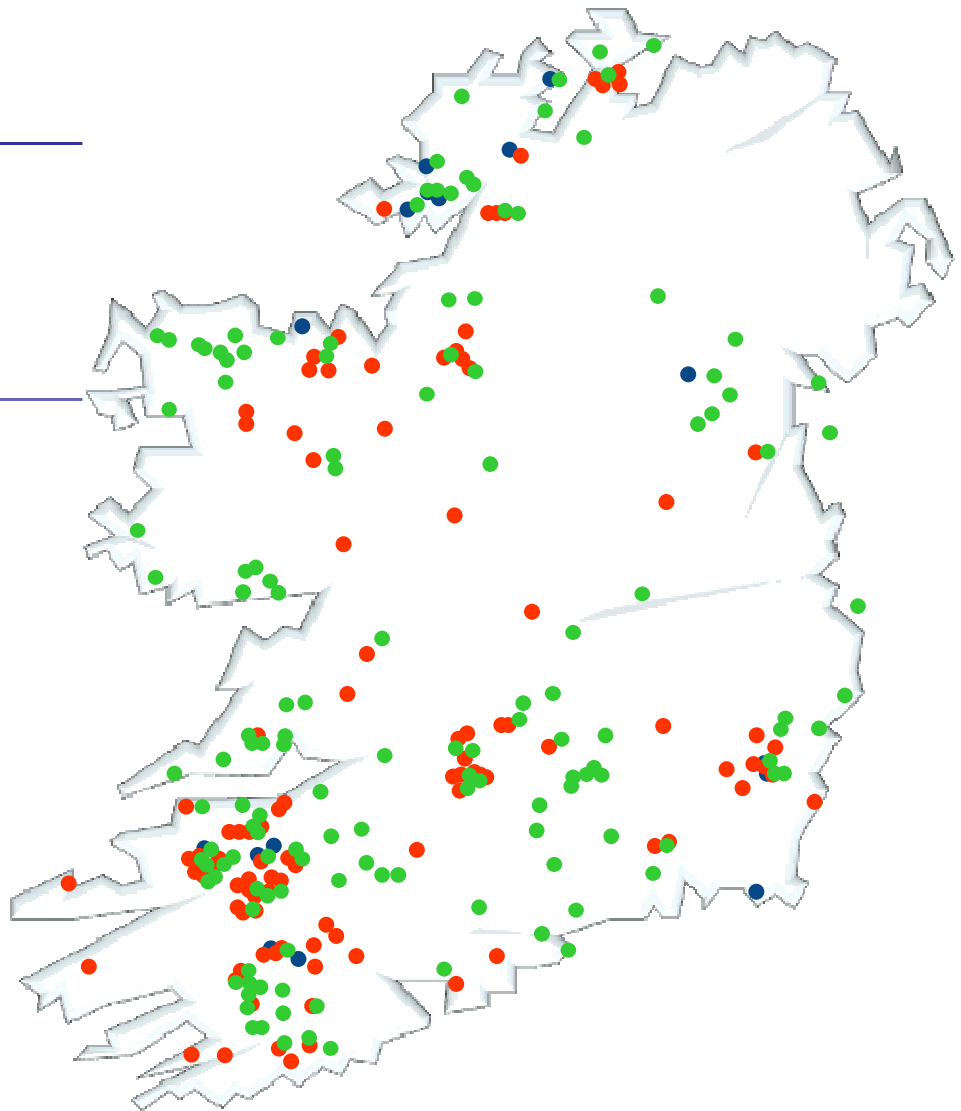


Wind Connections (Jan 10)





Gate1: Blue
Gate2: Red
Gate 3: Green



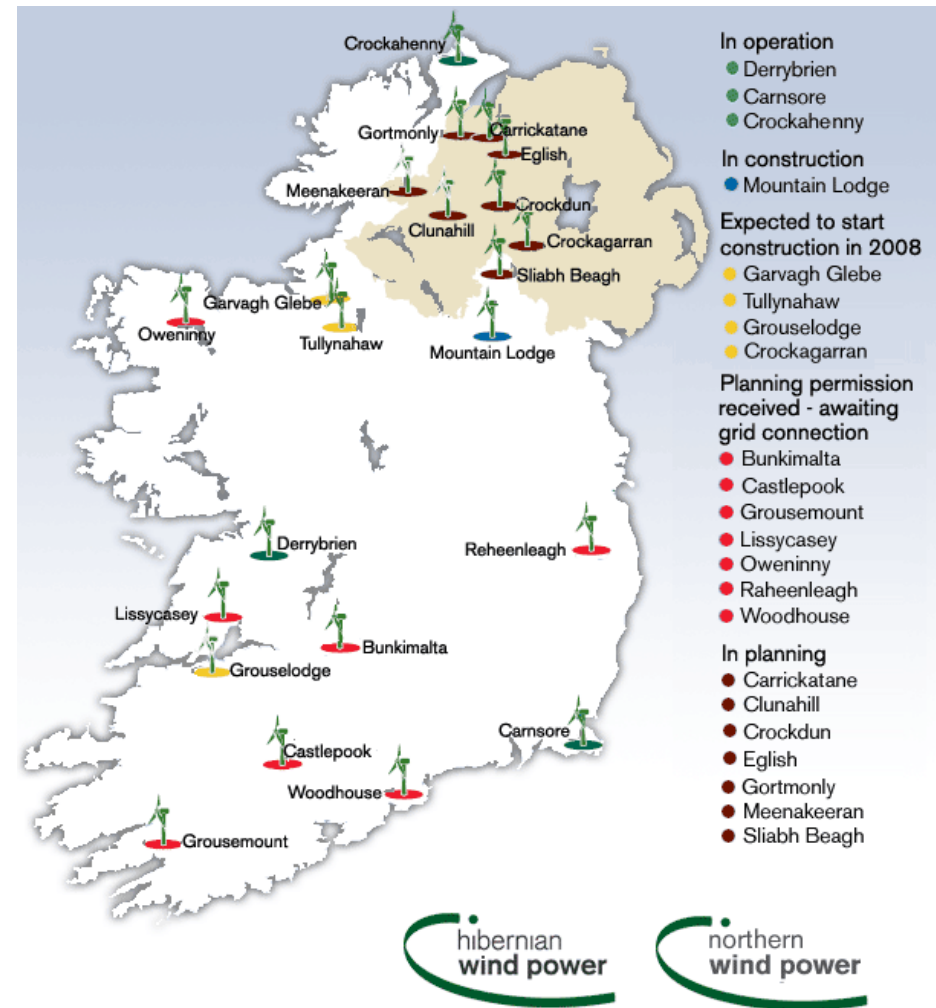
Wind

ROI&NI

- 600 MW by 2012
- Further 800 MW by 2020

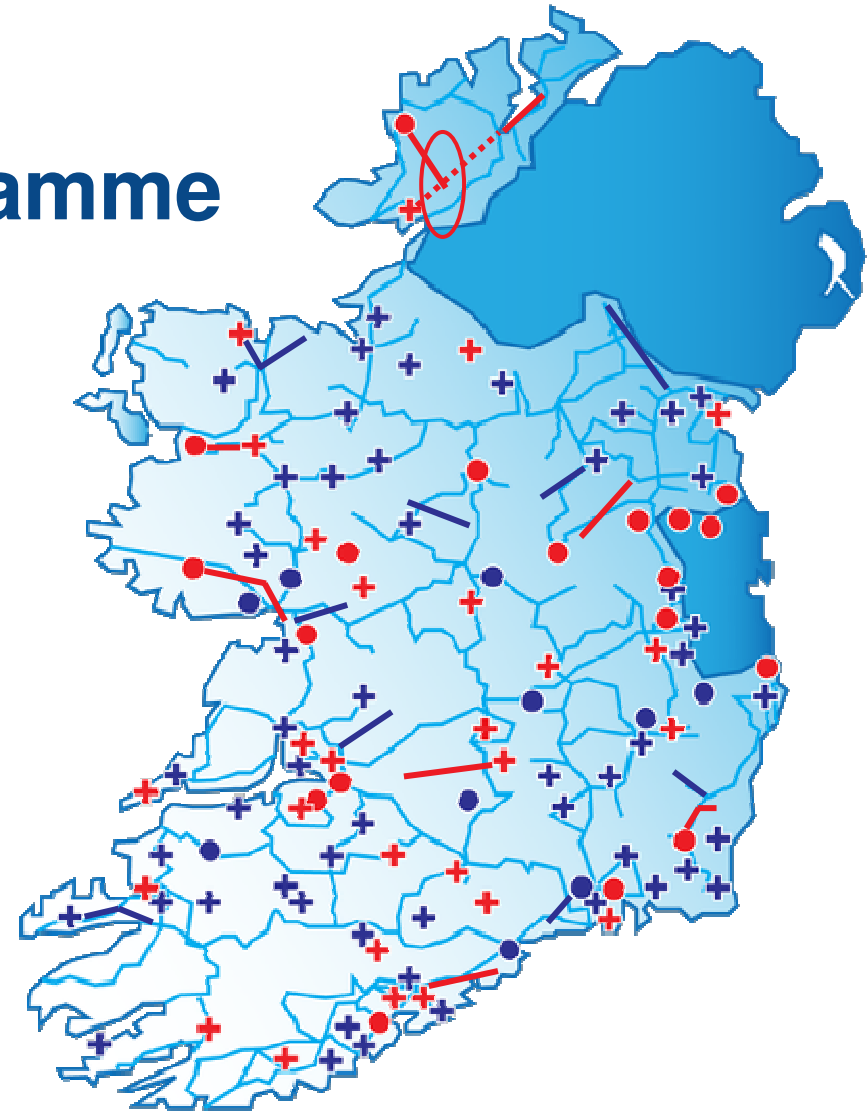
UK

- 200MW by 2012



Major National Infrastructure Programme

- + 110kV Development
- + 38kV Development

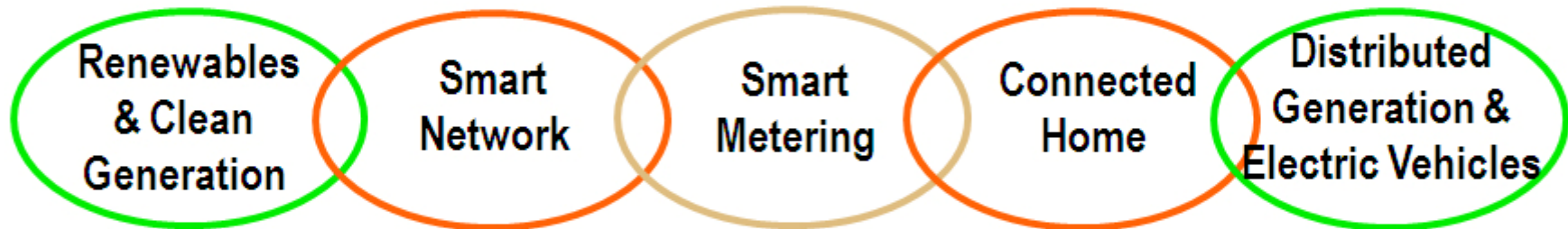


Evolving Smart Networks Model

Energy flow



Information flow



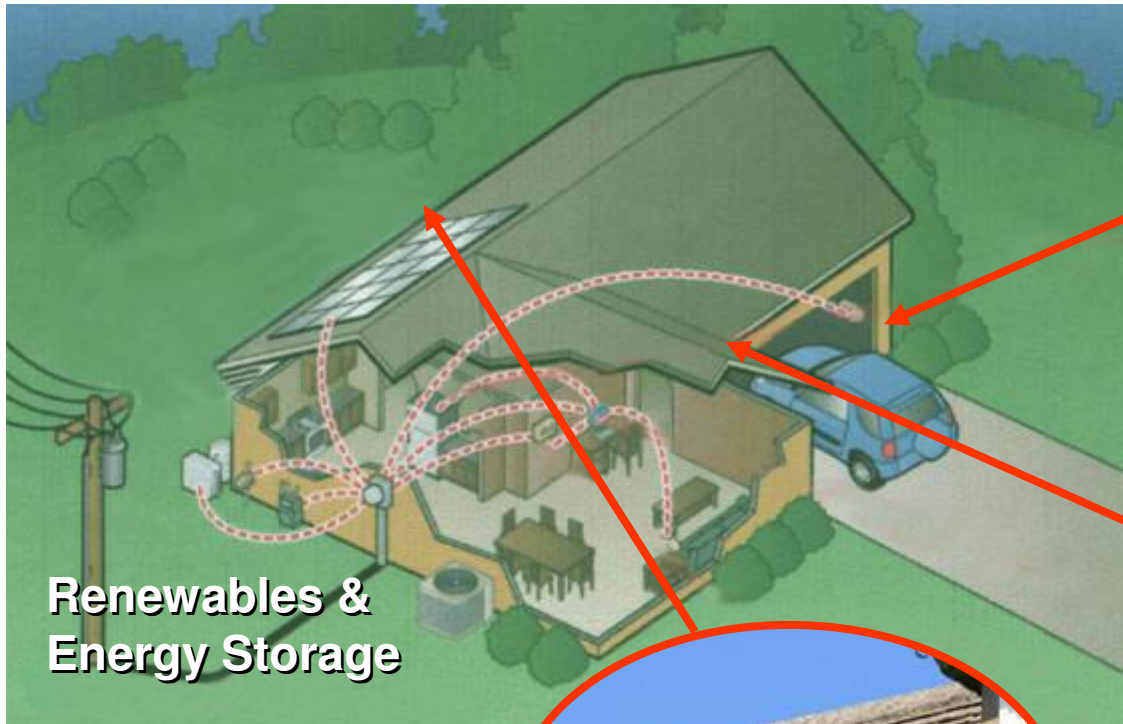
Electricity Infrastructure



IT / Telecom Infrastructure



Connected Home



Renewables & Energy Storage



opportunities through Plug-in electric vehicles



Enable micro gen & energy management



Customer Home Storage creates opportunities for increased renewables

Support for Micro Generation (2009)

- ESB will provide import/export metering free of charge to the first 4,000 domestic customers installing micro-generators in the next 3 years.
- ESB will provide Market-support payment of 10 cents per kWh for the first 3,000kWh exported annually. (5 years)
- In addition, ESB Customer Supply will offer an export payment of 9 cents per kWh to domestic customers of CS



Electric Vehicles

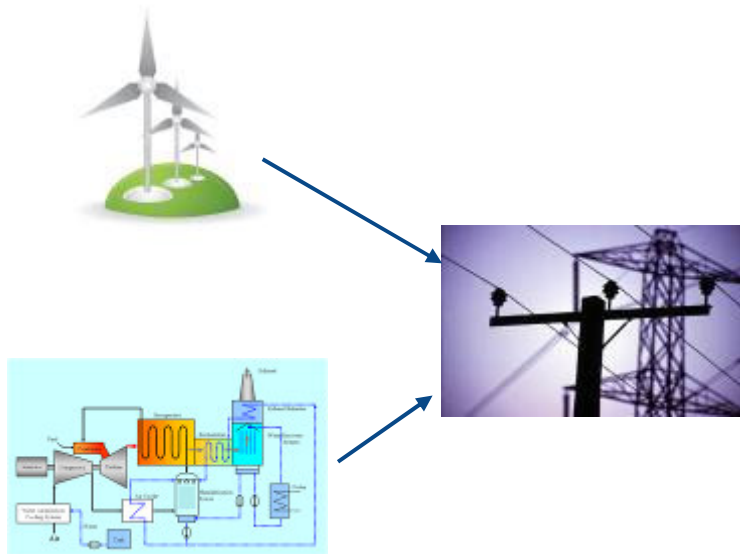
- Electric car deployment is part of Government policy
 - 10% by 2020 – 250k vehicles
 - 6,000 cars by end of 2012
 - 2,000 cars by end of 2011
- ESB, Irish Government and Renault- Nissan Alliance
- Zero VRT and €5,000 to offset the cost of the battery
- Nissan Worldwide 15,000 car – 1,000 designated to Ireland
- ESB to provide charging infrastructure – 2011 Roll-out
 - 2,000 Domestic charge points (6hr) 1,500 public accessible points (1-2hr), 30 fast charge (25mins)
- Agreements with other car manufacturers are pending; e.g. Mitsubishi, Peugeot, Citroen
- Open-access for all car manufacturers, electricity suppliers



- Single network company
- Massive wind penetration
- Ireland has a unified vision
- Limited range between cities
- Home ownership >80%
- Ideal climate for batteries



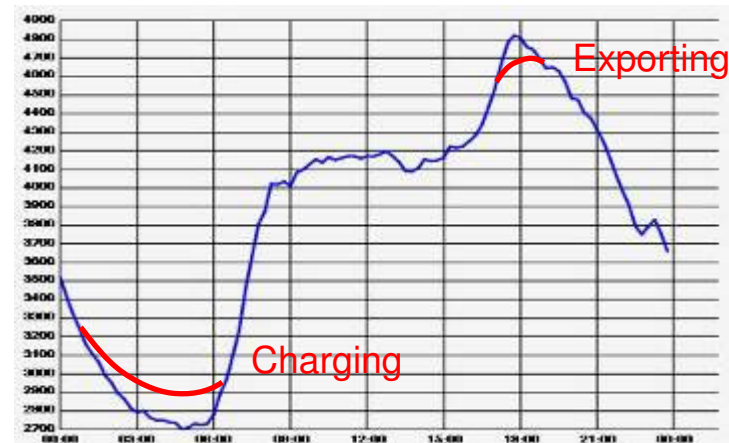
Power Grid & EVs (“Smart 2-way”)



Dual flow
Smart
Meters

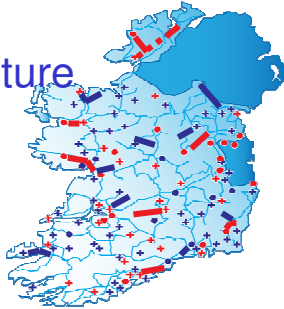


- Import/export tariffs to drivers
- EVs as “storage plants”

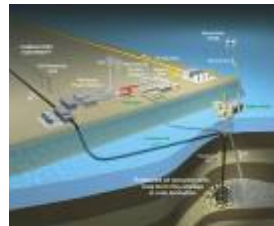


Sustainability - at Heart of ESB Strategy

Infrastructure



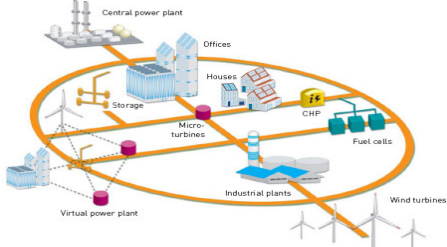
Sustainable Generation incl
Clean Coal and CCS



33% Renewables 2020



Smart Networks / meters /
6000MW Wind



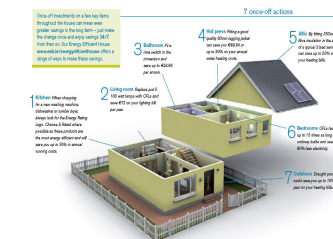
ESB in a European
market



Electric Vehicles



Energy Services for
Customers



FOR GENERATIONS
TO COME

Net-Zero
Carbon
2035



Limerick Clare Energy Agency - Planning for Renewables

www.esb.ie

Thank you



FOR GENERATIONS
TO COME

Brian McAleer
ESB Sustainability



Limerick Clare Energy Agency - Planning for Renewables

www.esb.ie