



New Energy and Technology

Dec 8th 2011

Donal O'Sullivan



Bord Gáis Investment Strategy

- **Strategy**
 - Competitive
 - Secure
 - Sustainable



Wind Power
SWS

Whitegate 440 MW
CCGT



New E&T - What are others doing?

| Company | Wind | CHP / Cogeneration | Hydro | Wave | Smart Metering | Biofuel | Solar | Energy Efficiency | Nuclear | Carbon offset | MicroGen | Research | CCS |
|---------------------------|------|--------------------|-------|------|----------------|---------|-------|-------------------|---------|---------------|----------|----------|-----|
| SSE | •••• | •••• | •••• | • | • | •• | • | •• | • | • | • | | • |
| Centrica | •• | • | | | •• | | • | •••• | •••• | | •••• | | |
| EDF Energy | | | | | | | | | ••••• | | | | |
| ScottishPower / Iberdrola | •• | • | | • | | • | | | | | | | |
| E.on UK | •• | • | | • | • | | | | | | • | • | |
| RWE/ nPower | •• | | | • | • | | • | | | | | | • |
| Bord Gáis | •• | | | • | • | •• | | • | | | • | • | |

Be prepared to manage this as a very different business *

- Innovative and experimental
- Able to respond to new opportunities in a rapid and flexible way
- Utilising partnerships to extend capabilities
- Some projects will lose money!!

New Energy & Technology are prospecting for the future....

- **Identify future trends** for sustainable energy production and energy efficiency in Ireland.
- **Track emerging technologies** {e.g. Ocean, Bio-methane, Micro CHP} for sustainable energy production.
- **Drive changes to market arrangements** and financial mechanisms to support the development of sustainable electricity, heat and transport in Ireland
- **Be recognised as a leading innovator in the Irish energy market**
- **Continuously provide innovative value-add products and services** that support the retail division of Bord Gais Energy

With more wind we need more flexibility ...

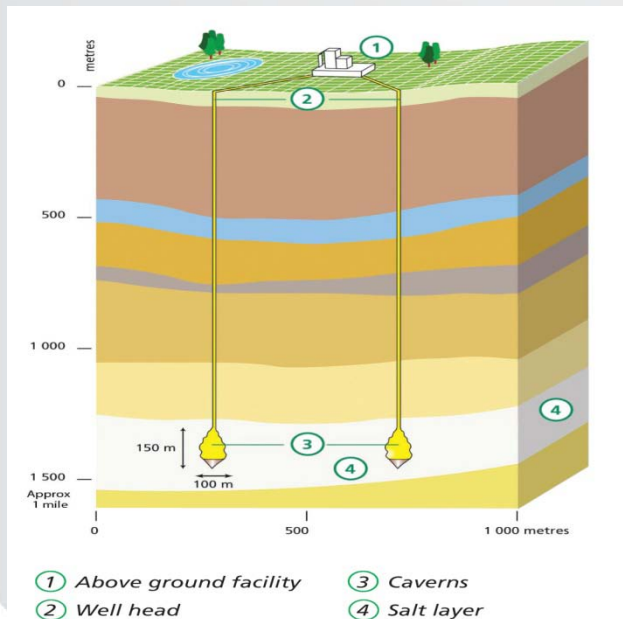
Greener Ideas Ltd.

- 3 x 100 MW gas fired OCGT's (45% efficiency)



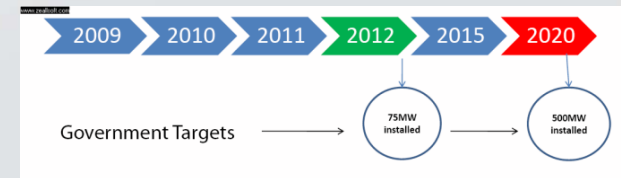
North East Gas Storage

- In consortium with GDF Suez
- Over £10m committed to date



We are positioned to harness the wave energy opportunity

- Member of the Marine Renewable Industry Association
- Bord Gais completed c.€2m investment into Wavebob in 2010 and setup Tonn energy.
- Adopting a “Wait and See” approach in Ireland due to:
 - No Clear Application process, unlike Scotland’s “one stop Shop”
 - No plans for grid reinforcement to accommodate Wave Energy
 - No devices near commercialisation
 - No clear business case on the economics of export
- Westwave project represents a test of our Government’s commitment to Ocean Energy



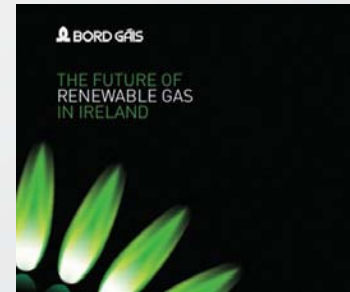
However the Tidal opportunity is more immediate....

- Bord Gais completed a €2m investment in Open Hydro
 - JVC formed which will participate in a tidal license round in Northern Ireland for over 100MW.
- Licensing
 - The Crown Estates plans to open a leasing round early in 2012
 - Site assessments and stakeholder management ongoing
 - Department of Environment, Heritage and Local Government in the Republic
 - BGE has interest in doing same in ROI when framework established



7.5% of our national gas demand could be met from biomethane...

- The 'Future of Renewable Gas in Ireland' report;
 - Ireland could produce and inject up to 7.5% of the 2010 national gas demand through the construction of 200 rural digesters at a total investment cost of €1.2bn.
- Renewable gas to nearly 300,000 homes delivers 6.5% of RES H or up to 12% renewable transport fuel - RES T.
- Supporting post doc research in UCC in biomethane production from different organic substrates
- Invested €2mill in Ceres Power for the development of fuel cell micro CHP devices for the Irish market.
 - Trials in 2012, commercial deployment in 2013
 - Currently trialling the Baxi Ecogen boiler in conjunction with SEAI



Foundational Member of the IERC - International Energy Research Centre

- Industry lead research centre based in Tyndall
- Formulated through the IDA with United Technologies Corp and Enterprise Ireland (EI)
- To provide a platform for industry partners to specify research on focused area within their requirements, liaise with other companies in JV collaboration and access the top researchers in the country
- Co-ordinated by Tyndall, overseen by EI
- Funded by Enterprise Ireland €20M fund and private industry funding
- Potential industry partners
 - IBM, Siemens, Schneider Electric, UTC, Endeco, Fujitsu, Intel, Intune networks, ResourceKraft, Nokia Siemens Networks, Energy WatchIT, DePuy, ABB, AECOM, Aramark, CG Power Systems, Zander, Bord Gais (E&N), ESB(I&N).