



EirGrid Group Customer Conference 2012

25th October 2012

Delivering the Power System of tomorrow





ESB Innovation
For a Better Energy Future
Denis O'Leary
Smart Energy Technologies
Manager

ESB – has been Delivering its mission for 85 Years

Nation building

Rural electrification

Securing Ireland's energy supply

Competition

CO₂ & market integration



Electricity generated

Real GDP

CER
Commission for Energy Regulation
An Commission um Rialta Fuinn



1927

2012





but ... the future will require different business models & technologies

Today

The future



Fossil fuels



Low Carbon & Renewables



Passive networks



Smart grids



Passive consumers



Active participants

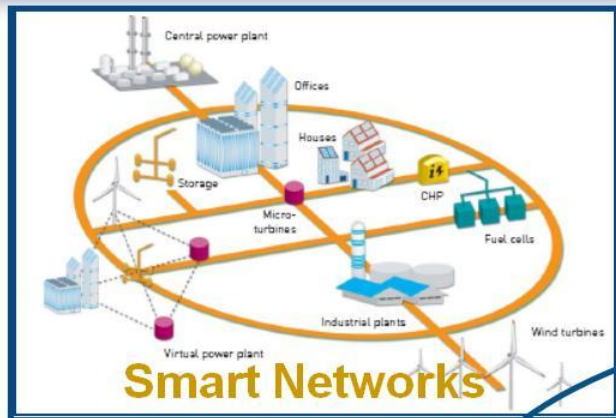


Supply electricity



Providing services

Where is ESB focusing its energy?

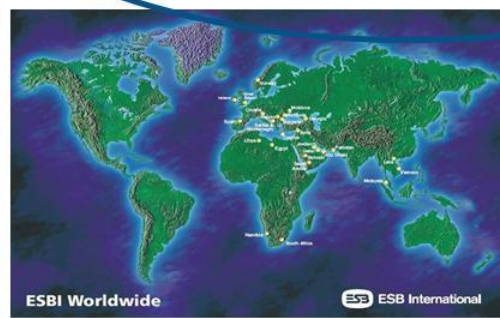


ESB Innovation

Developing new lines of business for ESB & Ireland



ESB Novusmodus



Smart Grids will be a key driver of change for our industry

DECARBONISE GENERATION

+

TRANSFORM NETWORK

+

ALTER USAGE/ CONSUMPTION

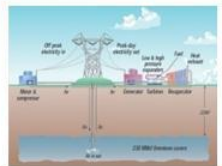
Renewables



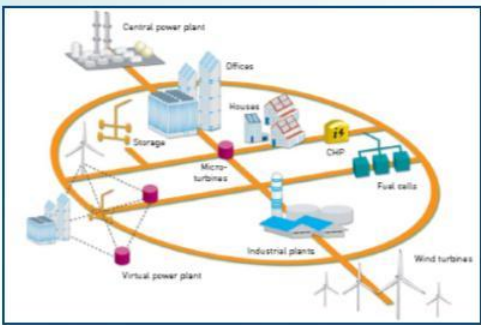
Carbon Capture /Clean Coal & Gas



Energy Storage



Smart Grids/Networks



Distributed Generation



Electric Vehicles








Electrification of Heating

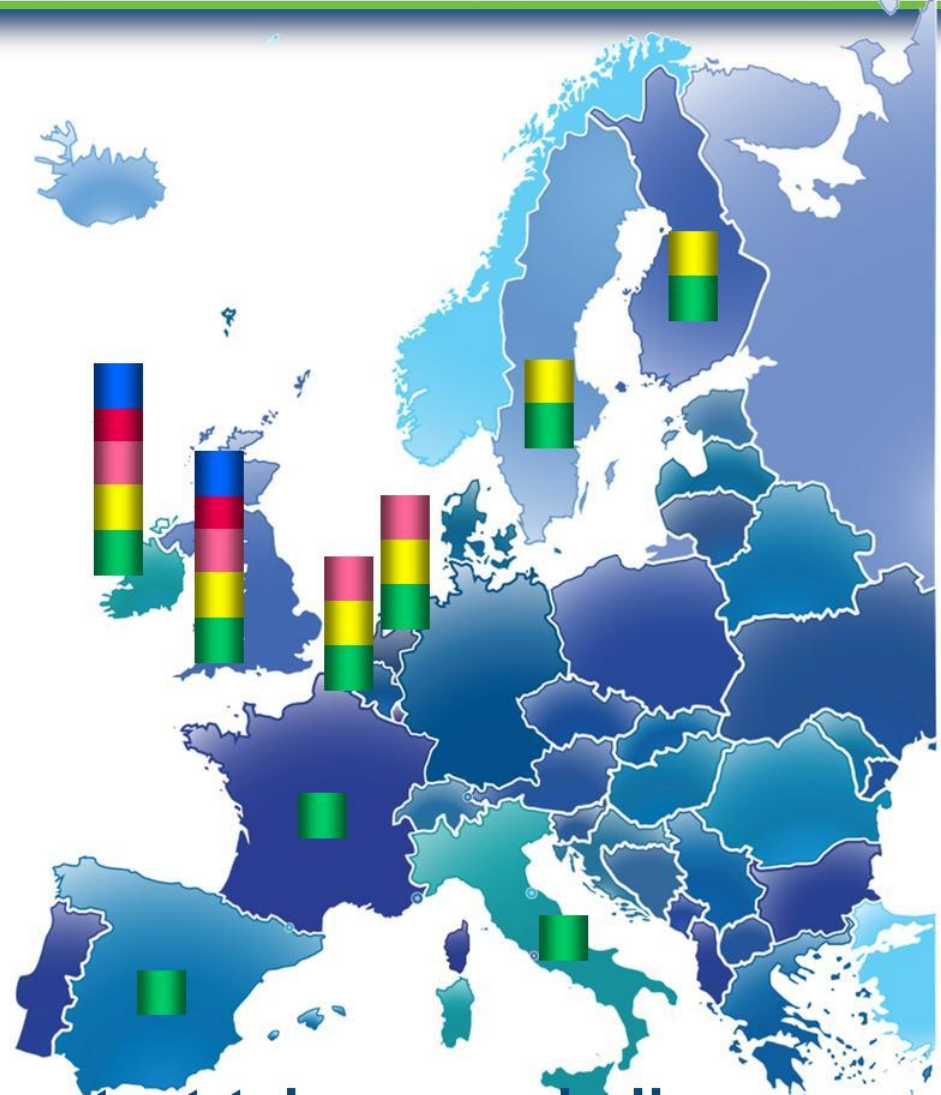


Energy Efficiency/Usage



... but while we will have one of the most ambitious roll outs in Europe

-  IHD for all
-  Embedded HAN
-  Integrated with Gas Meter Consumption available to home
-  Daily profile reading
-  Automatic Meter Reading
Continuity mgt support
Remote meter operation
Event monitoring
Remote tariff configuration

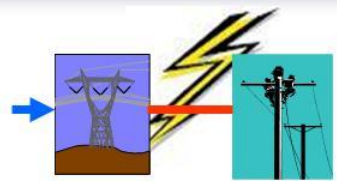


... we have some of the greatest telecoms challenges



Innovation

We are already enabling Customers & New Technologies – Electric Vehicles



Electricity Faults



Traffic



Weather



Personal Diary Data



Real Time Electricity Prices



Cloud



CER In Home Display (IHD)

HEMS

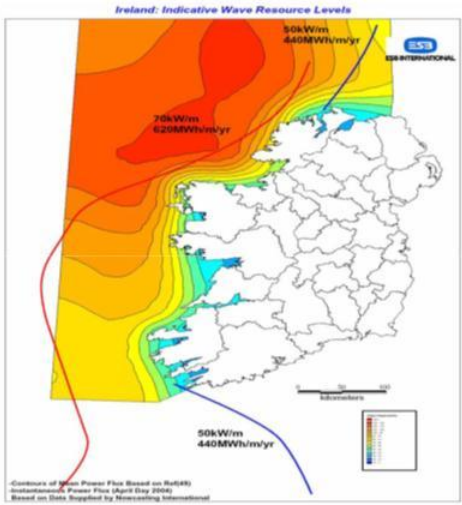
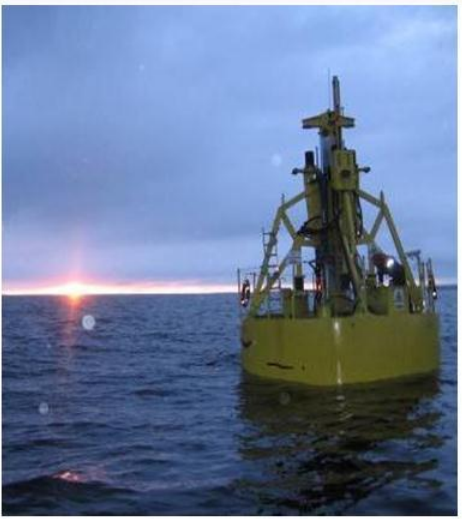


Smart EVSE



Car CANbus

- Next generation of renewables
- World-class resource - in Ireland
- Strong experience in wave and tidal energy
- Position ESB for growth 2020+
- Irish Government commitment



- Utility led pre-commercial project
- First wave energy farm in Ireland
- Pave the way for commercialisation through:
 - delivering 5MW small-scale array at acceptable cost
 - demonstrating technology readiness
 - developing the supply-chain *and*
 - developing public acceptance.



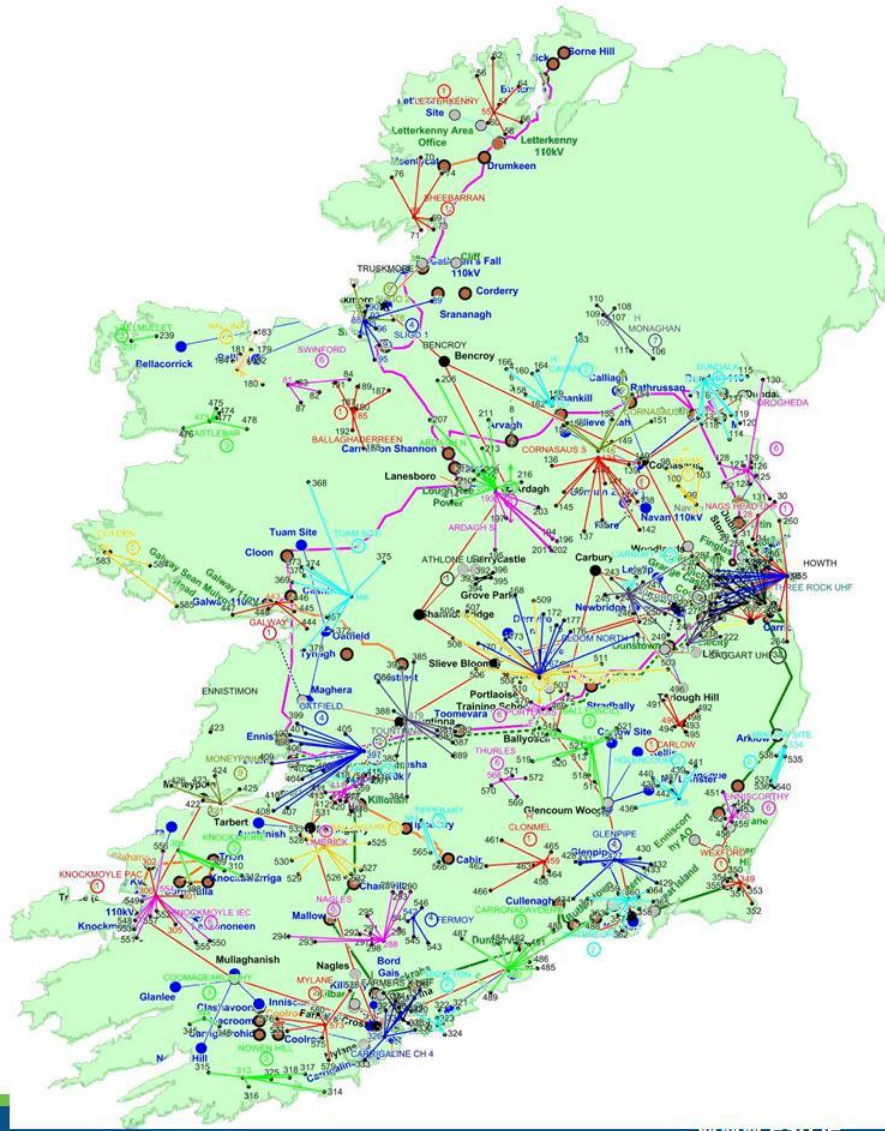
Smart technologies need a robust Telecommunications Infrastructure

■ Extensive telecommunications network built up over time.

- Fibre:
 - 2,500Km(24-288 cores)
- Microwave Radio
 - Over 100 links
- Polling Radio
 - >500 Sites

■ Developments Underway

- Fibre extension,
- Microwave Upgrade
- R&D Planned
- IP Operational Network Migration



Targets



By 2020, download rates of 30Mb for **100%** of population and at least **50%** of population using 100Mb

Fibre to **90%** of the population and wireless broadband to remaining **10%**



Given present initiatives, these targets will not be met in Ireland

ESB International global operations



● Investments Overseas

ESBI has developed its own CCGT plants in Spain and the UK...



Amorebieta, Spain (2005)

▲ International Consultancy

ESBI provides a complete range of consultancy services for the electricity industry...



■ O&M Solutions

ESBI operates power plants and management contracts to the highest standards...



We are also supporting Innovation across the wider energy sector



ESB Novusmodus is a €200m investment fund focused on the low carbon energy sector

- Key part of ESB's strategy to promote innovation in sustainable energy
- Wide geographic coverage but focus on Ireland, UK and Europe

A leading European cleantech and renewable fund, managed from Ireland

and have established a diverse portfolio of Cleantech investments

Renewable Energy Generation

Technology Solution Provider

Energy Efficiency

Low Carbon



