Transforming Electricity for a Future Ireland

FOR GENERATIONS TO COME

John Campion
Executive Director
Sustainability

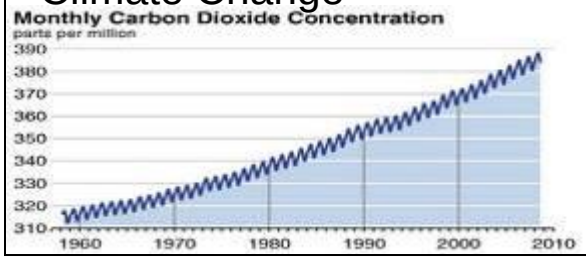
Agenda

- ESB Strategy for Sustainable Development
- Embedding a culture of Sustainability
- Building the infrastructure to support renewables
- Smart networks – tying it all together

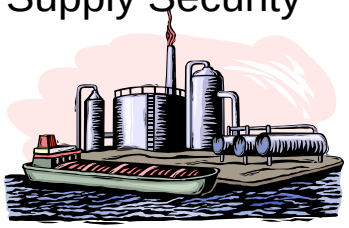
The Challenge for Utilities

Because of:

Climate Change



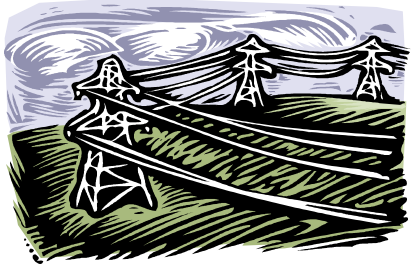
Supply Security



From

Fossil- fuel Generation

Large Central Grids

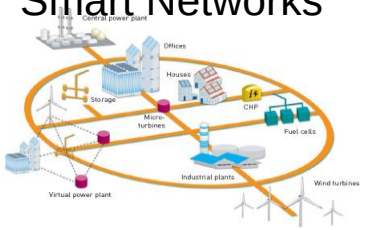


Passive end-user

To

Sustainable Generation

Smart Networks



Interactive end-user

ESB Strategic Framework

Investing €22 billion in ensuring a sustainable energy future
Supporting Ireland's continuing economic development
Delivering a value for money, efficient service to all our customers
Reducing our Carbon Emissions by 30% by 2012; 50% by 2020 and becoming Net-Zero by 2035

www.esb.ie

ESB Strategic Framework - Five core pillars

"Be a world leading commercially successful and environmentally responsible utility"

Renewables business of scale	Sustainable Generation	Sustainable Networks	Customer-Focus	International Growth
33% renewables by 2020 1400 MW Wind 150MW Ocean	Asset disposal Clean Coal / CCS	Deliver infrastructure Smart meters Smart Networks Electric Vehicles	Energy Services for customers	UK – 3000 MW Europe – 1600 MW tolled plant Clean Tech Investment €200m over 5 years

Sustainability Programme
National Leadership in Environmental Sustainability

ESB will be exemplary in the management of its internal business in terms of environmental impact and energy efficiency

Performance & Reporting ⟺ 30% reduction in **internal carbon footprint** by 2012 ⟺ **Staff Engagement**

Transforming Electricity for a Future Ireland
Earth Sciences Institute 28th May 2010

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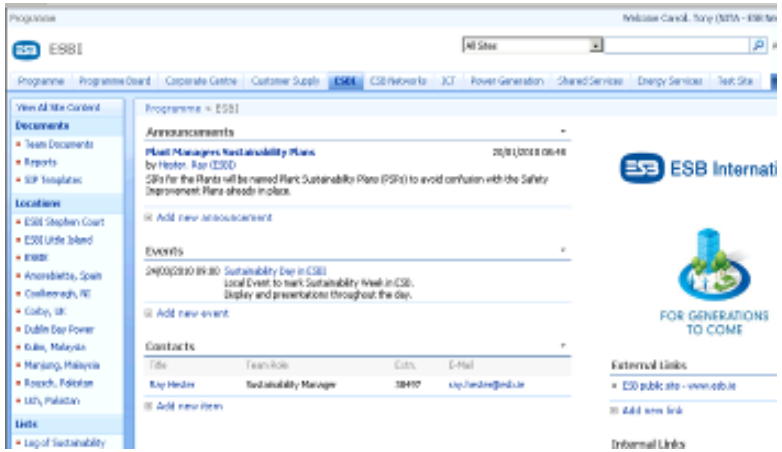
Staff Engagement

Communications

Collaboration / KM



Roadshow – 17 venues; ~3,000 staff

Sustainability Champions

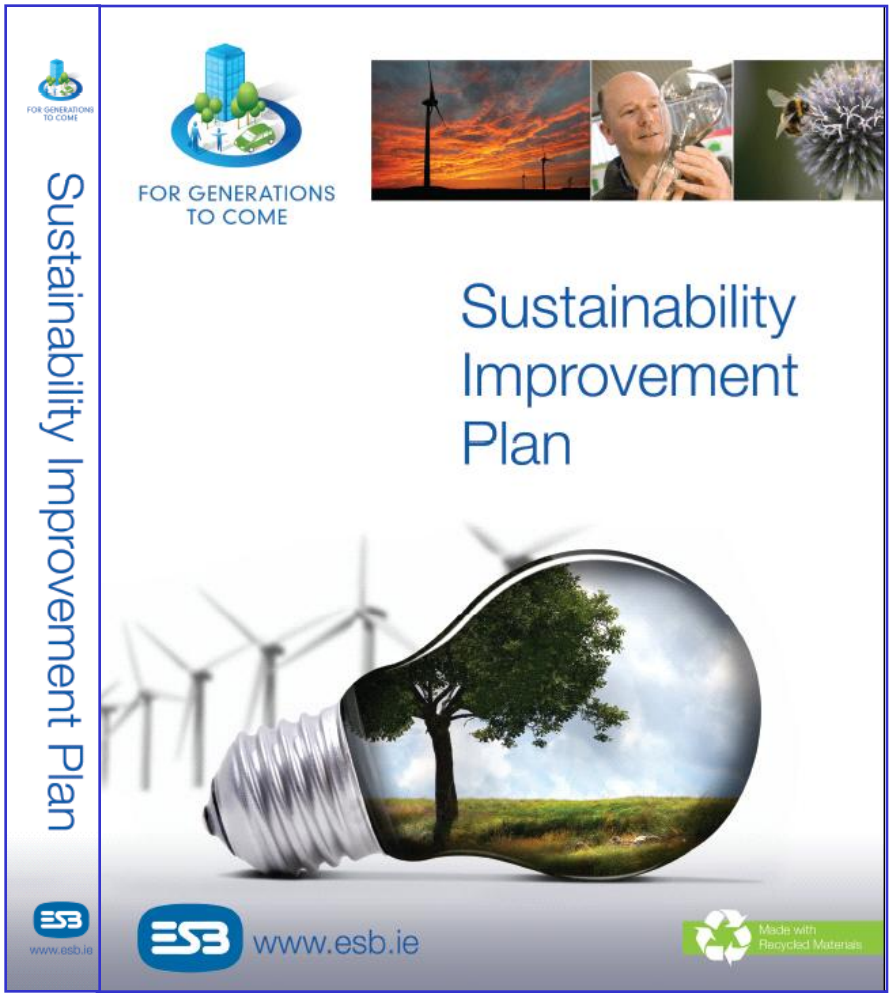
Pictured: Delegates at the conference held in Dublin

Sustainability – Work / Home / Community

Every Location in Ireland has SIP

Engage managers with Champions

Extending to Overseas locations



Transforming Electricity for a Future Irelan
Earth Sciences Institute 28th May 2010

Sustainability Awards

- Individuals
- Partnership Groups
- Management Teams/Functions

- Achievement
- Innovation
- Efficiency

- People based
- Work, Home, Community

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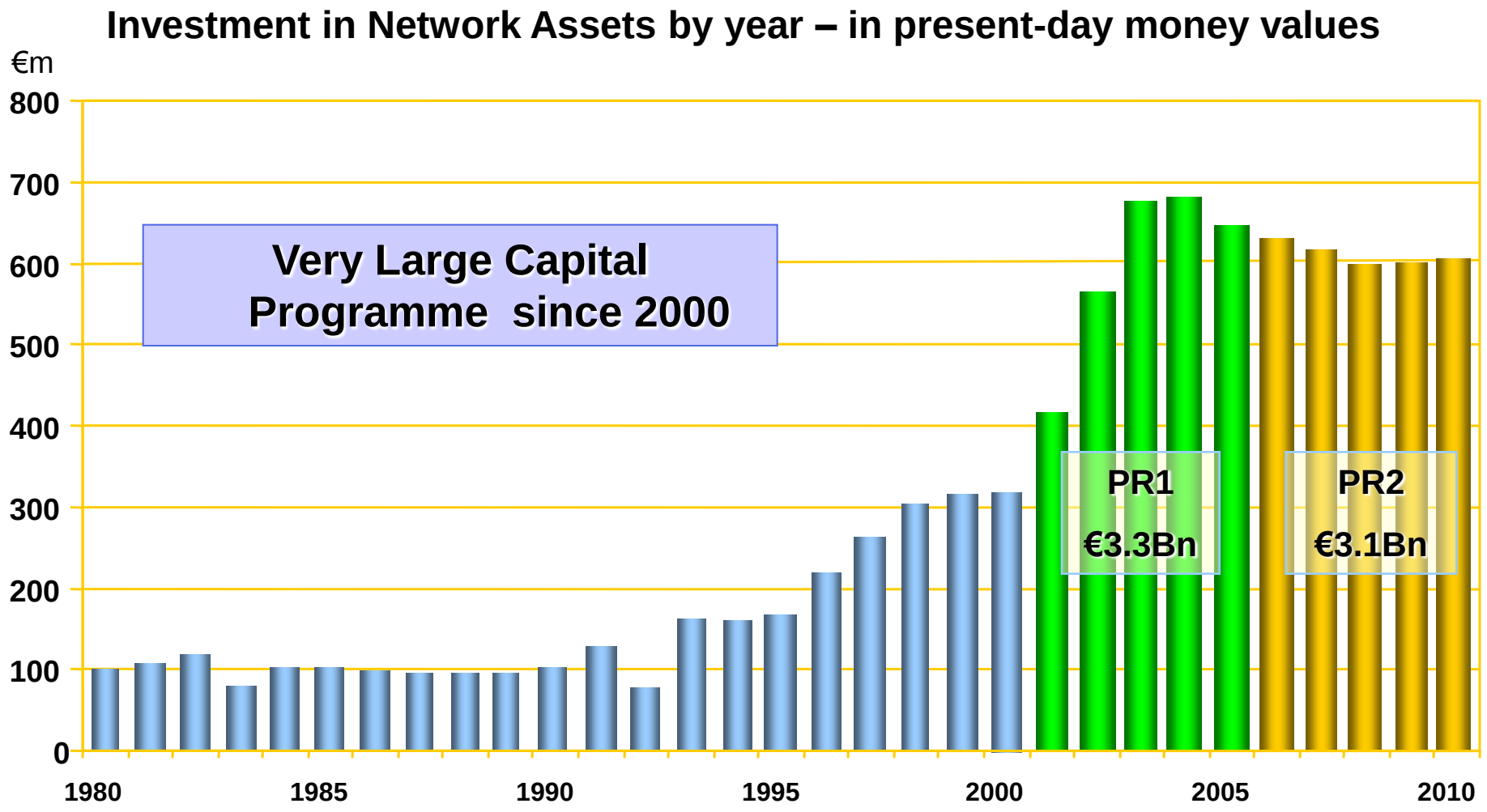
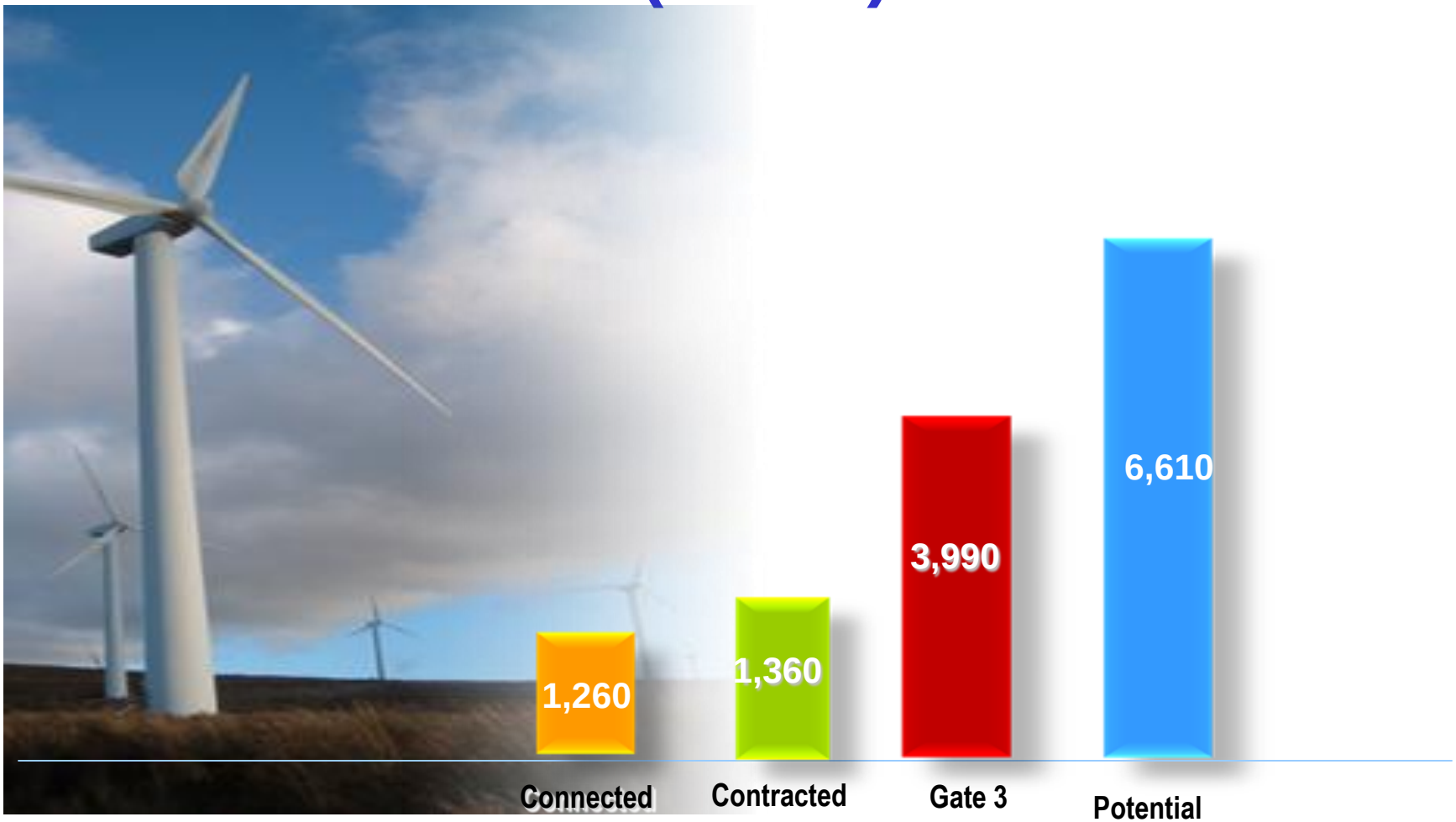
Networks Investment

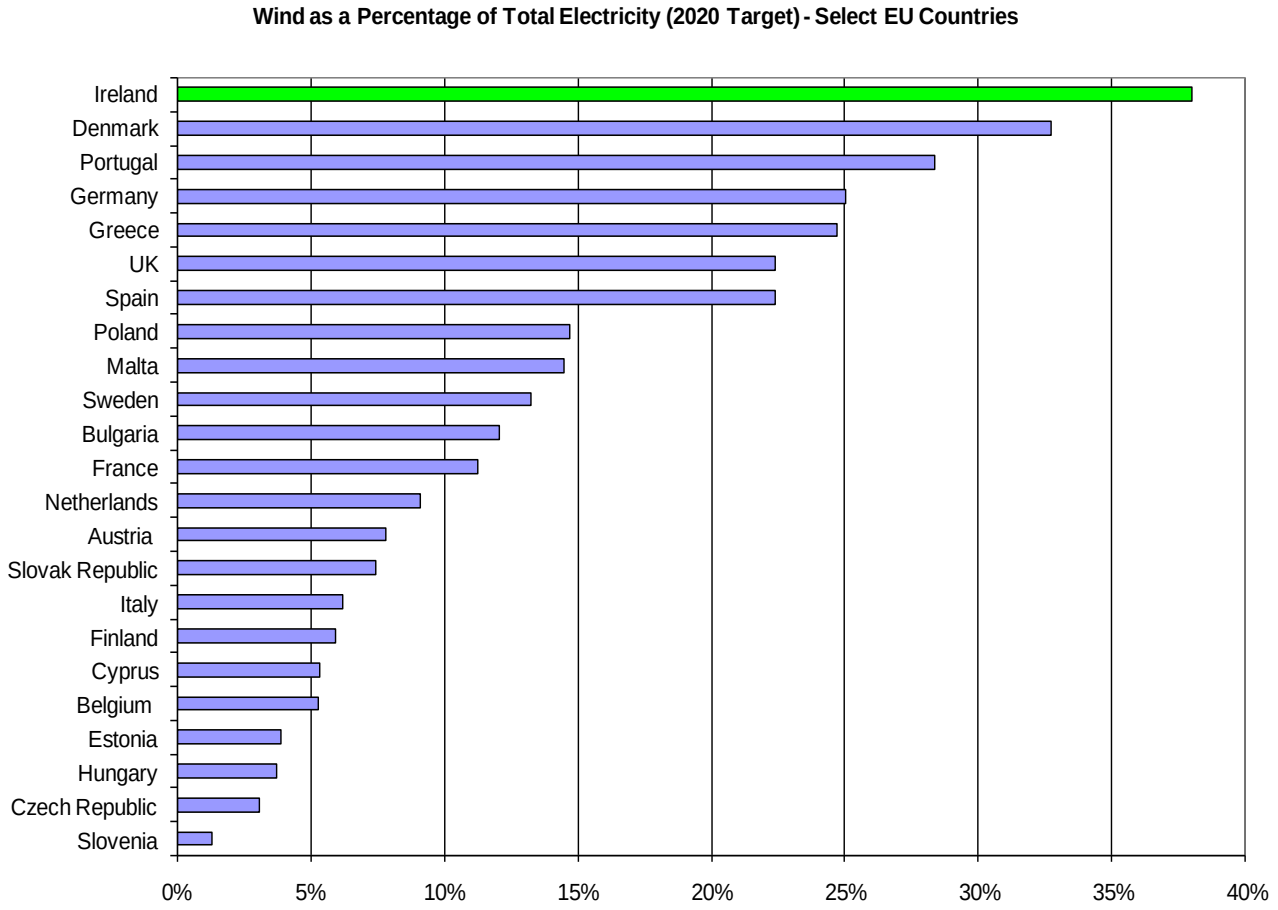


Wind Connections (Jan10)



Last update from Eirgrid 09/10/2009

Ireland Renewable Policy Target



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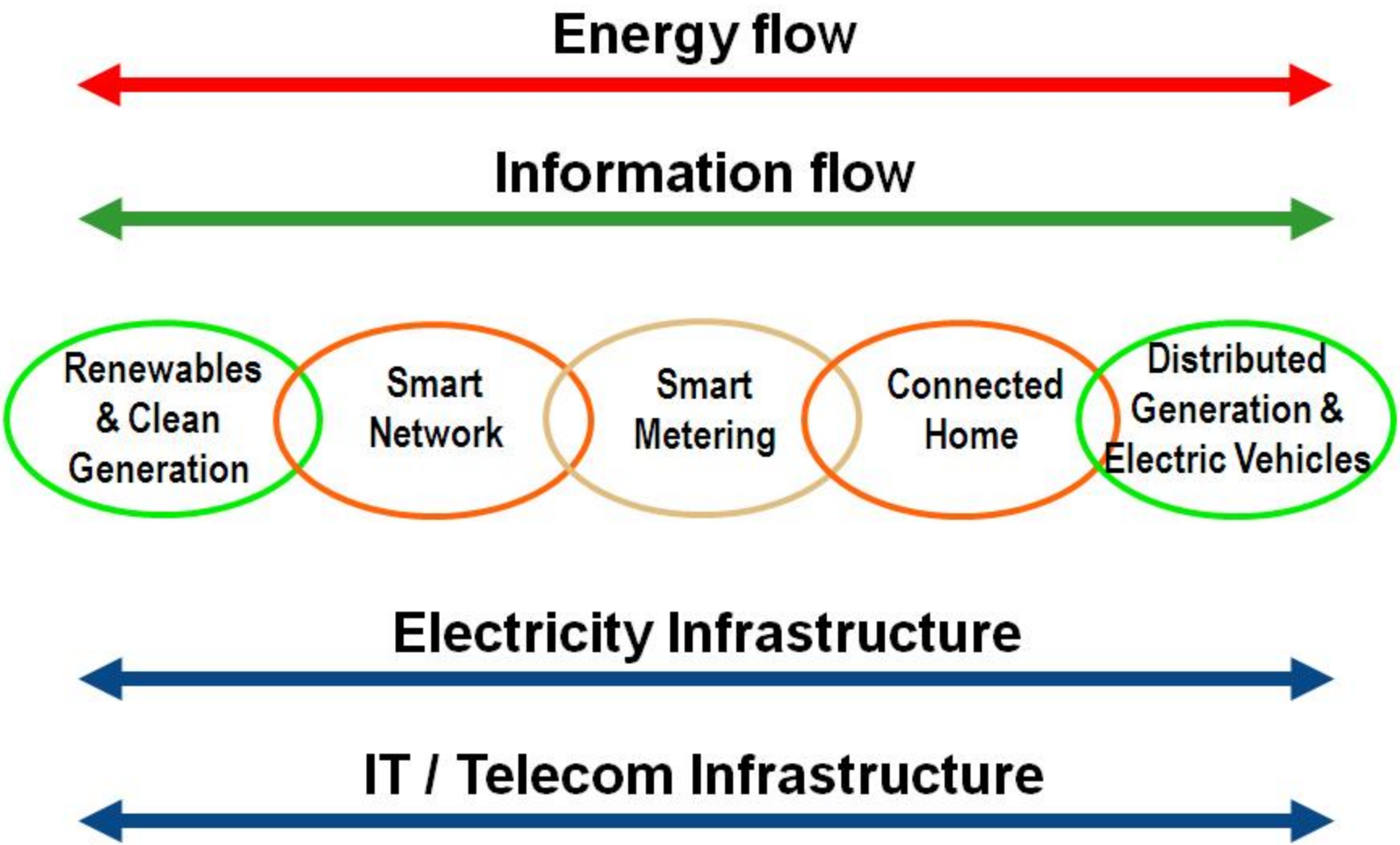
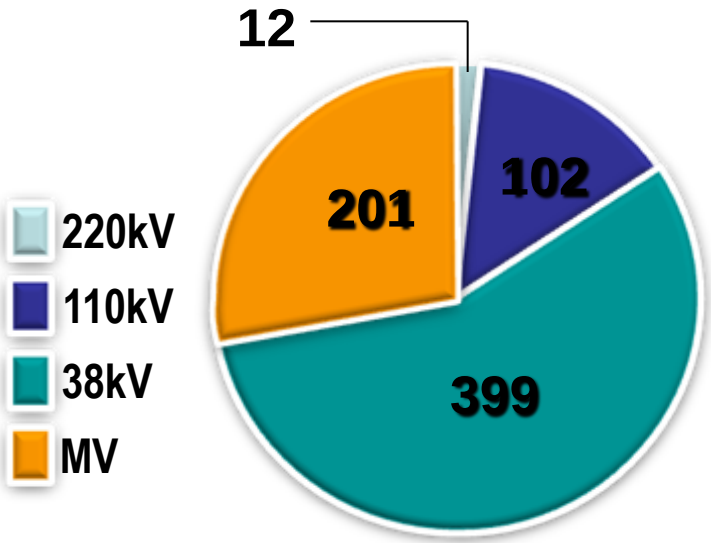
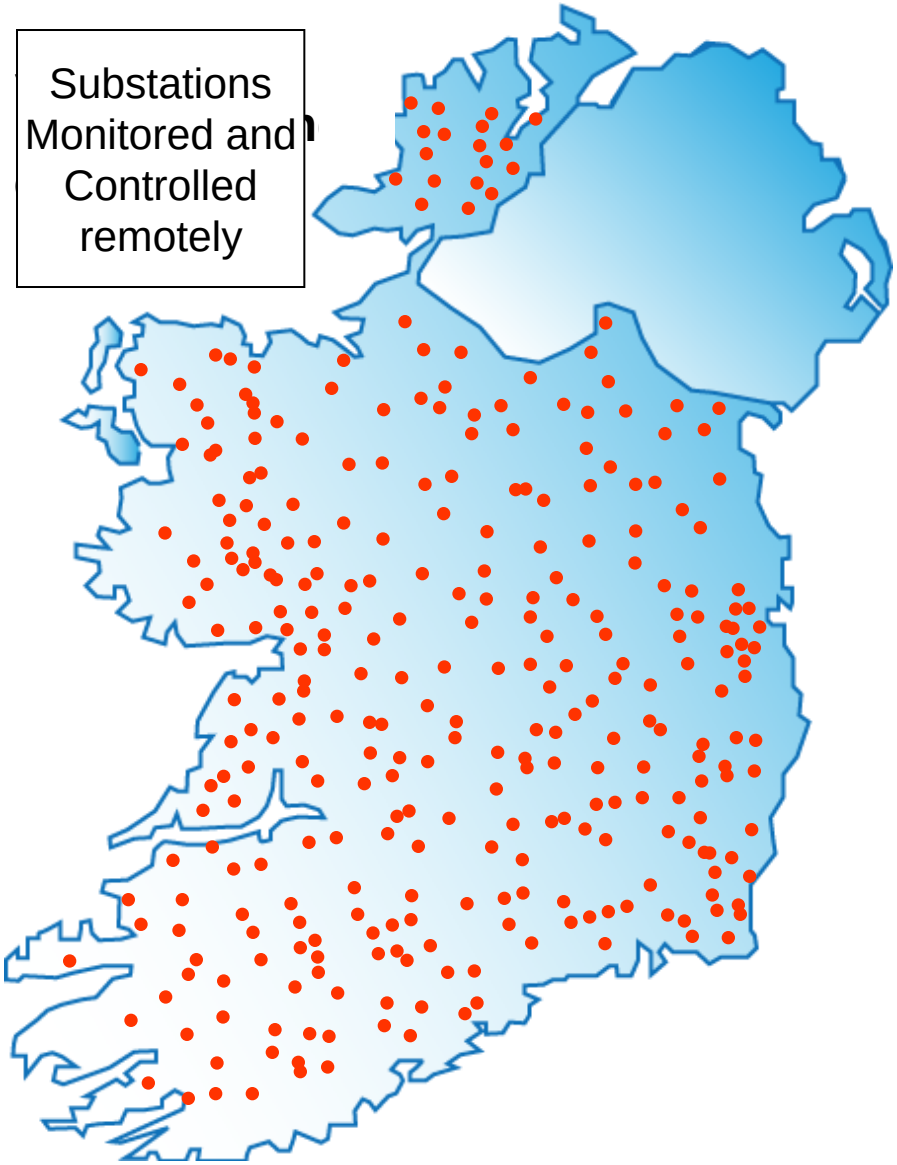
Evolving Smart Networks Model



Automated Networks



Substations Monitored and Controlled remotely



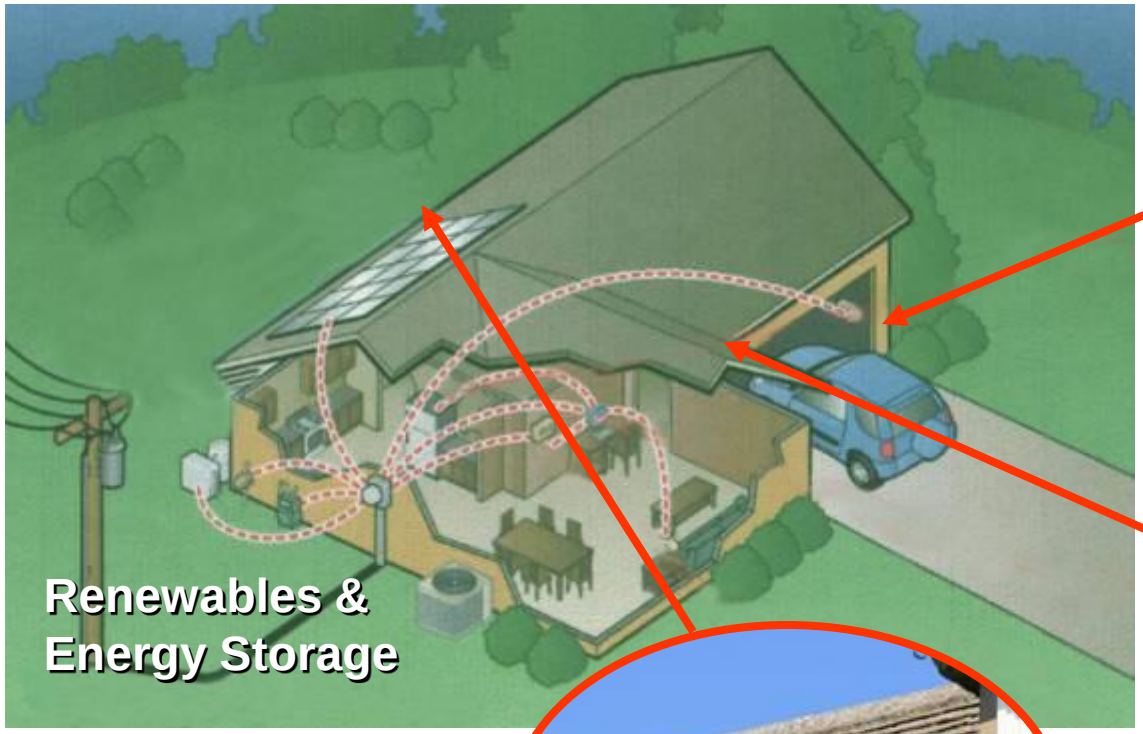
IBM Smart Grid Maturity Model:

ESB ranked third best in World out of 58 utilities

Progress on Smart Metering

- Customer Behaviour Trials:
  - 6,500 Smart Meters installed in 09;
  - 1,200 In-Home Displays
- Technology Pilot phase 1:
  - 6,000 installed in 09, including the various communication technologies viz. GPRS, PLC, DLC & RF.

Connected Home



Opportunities through Plug-in electric vehicles

Enable micro gen & energy management

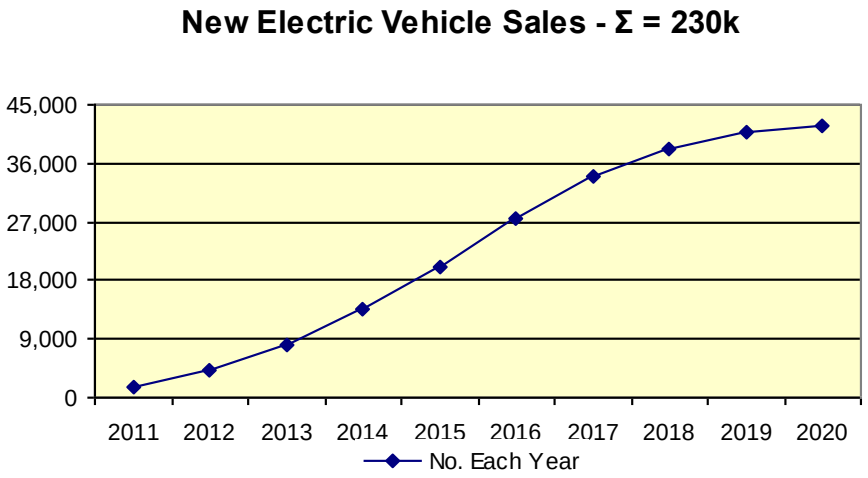
Customer Home Storage creates opportunities for increased renewables

Irish Government Targets for 2020

- 10% of all Vehicles will be electric
  - Battery or PHEV
  - 230k vehicles
- 10% of all road transport energy will be Renewable

"We will work with the ESB and international motor companies to see a deployment of some 6,000 electric vehicles over the next three years."

Renewed Programme For Government 10th Oct 2009



Three-party Agreement on Electric Vehicles

- **Government** to provide financial incentive – €9k per car
- **Renault-Nissan** to allocate substantial number of EVs to Irish market in 2011, subject to demand
  - –Large part of overall aim of 2,000 cars

- **ESB** to provide an appropriate charging infrastructure
  - –1,500 public accessible points, 2,000 at-home charge points, pilot fast charge

- **Agreements with other car manufacturers are pending; e.g. Mitsubishi, PSA Peugeot, Citroen**

- **Intention is open-access design for all car manufacturers, electricity suppliers and battery charging**

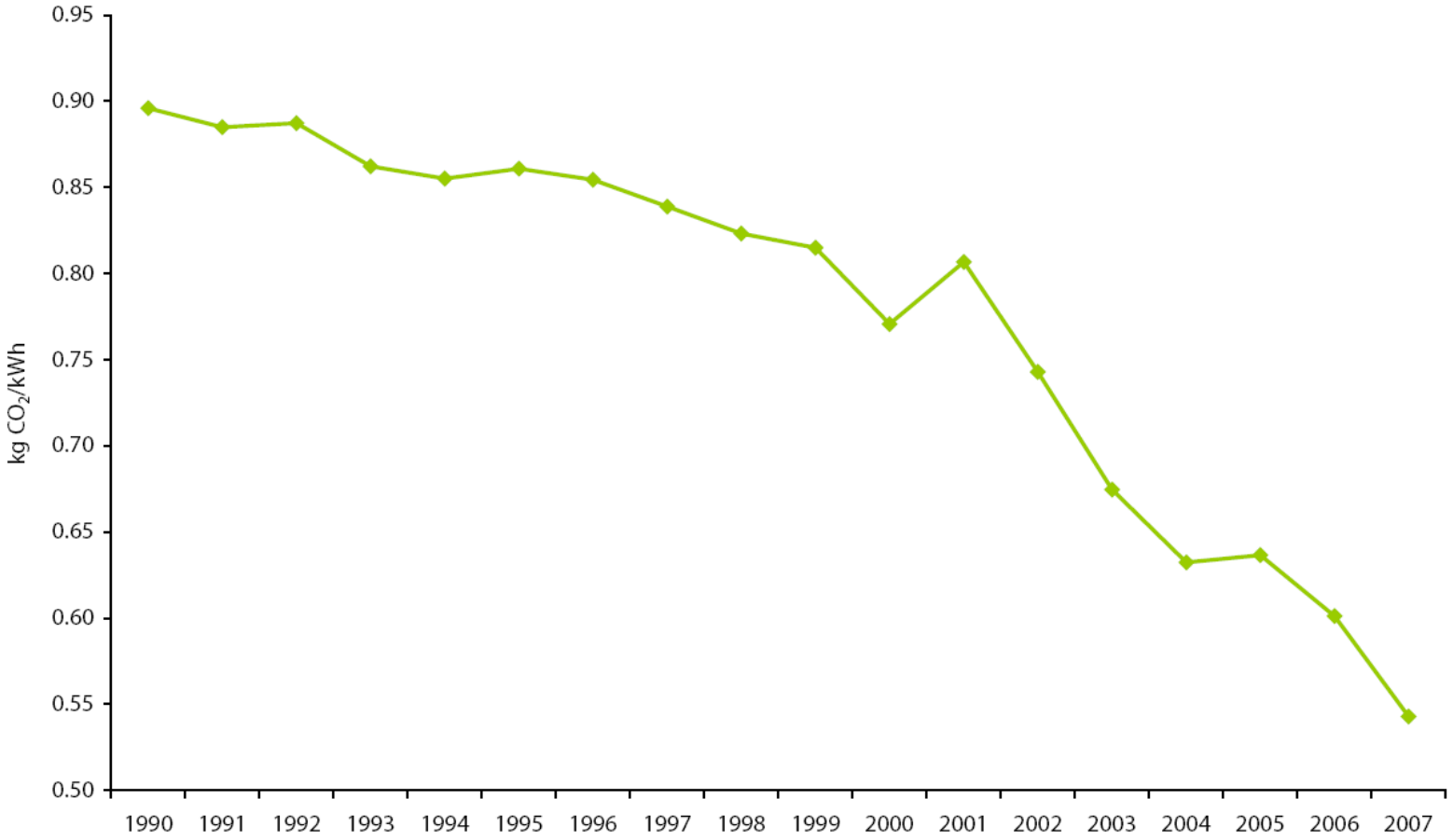
Ireland as a Testbed: Key Advantages

- Co-ordination of all key players
- High levels of wind generation
- Integrated electricity infrastructure (single owner)
- Limited range between major urban centres
- Ideal temperature – not too hot or cold for battery
- High levels of home ownership (~80%)
- Ireland is a leader in the IT sector
- Opportunity of national EV infrastructure coverage as opposed to cluster, similar scale

Tackling heating / Cooling Emissions

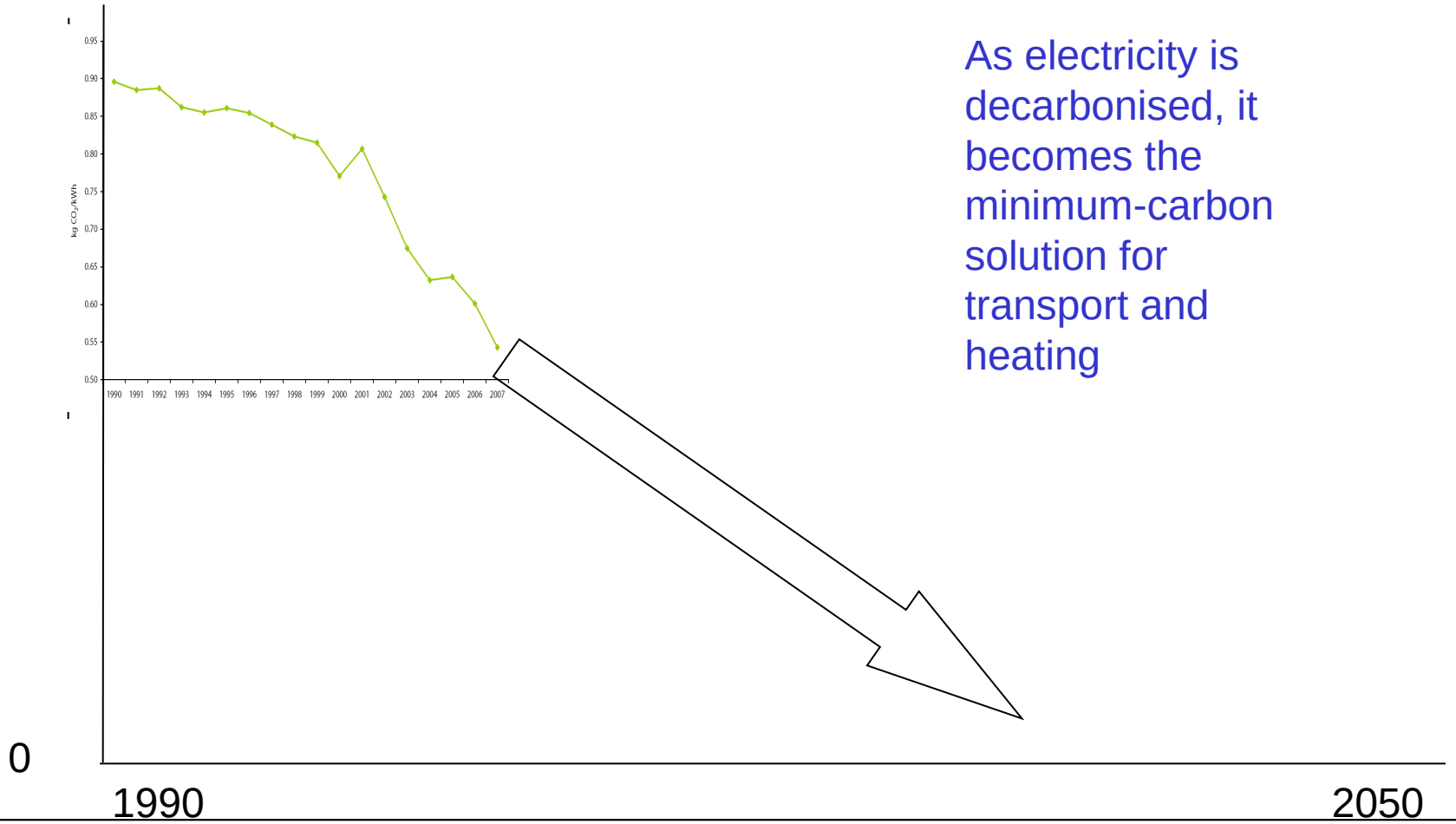
- Priority
  - Building standards
  - Improve performance of existing buildings
- For the future
  - Improved appliances / control systems / BMS etc.
  - Electric heating option; especially heat pumps (C.O.P. > 3)

CO2 Emissions per KWh of Electricity supplied

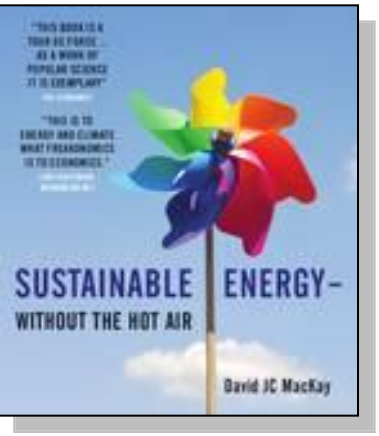


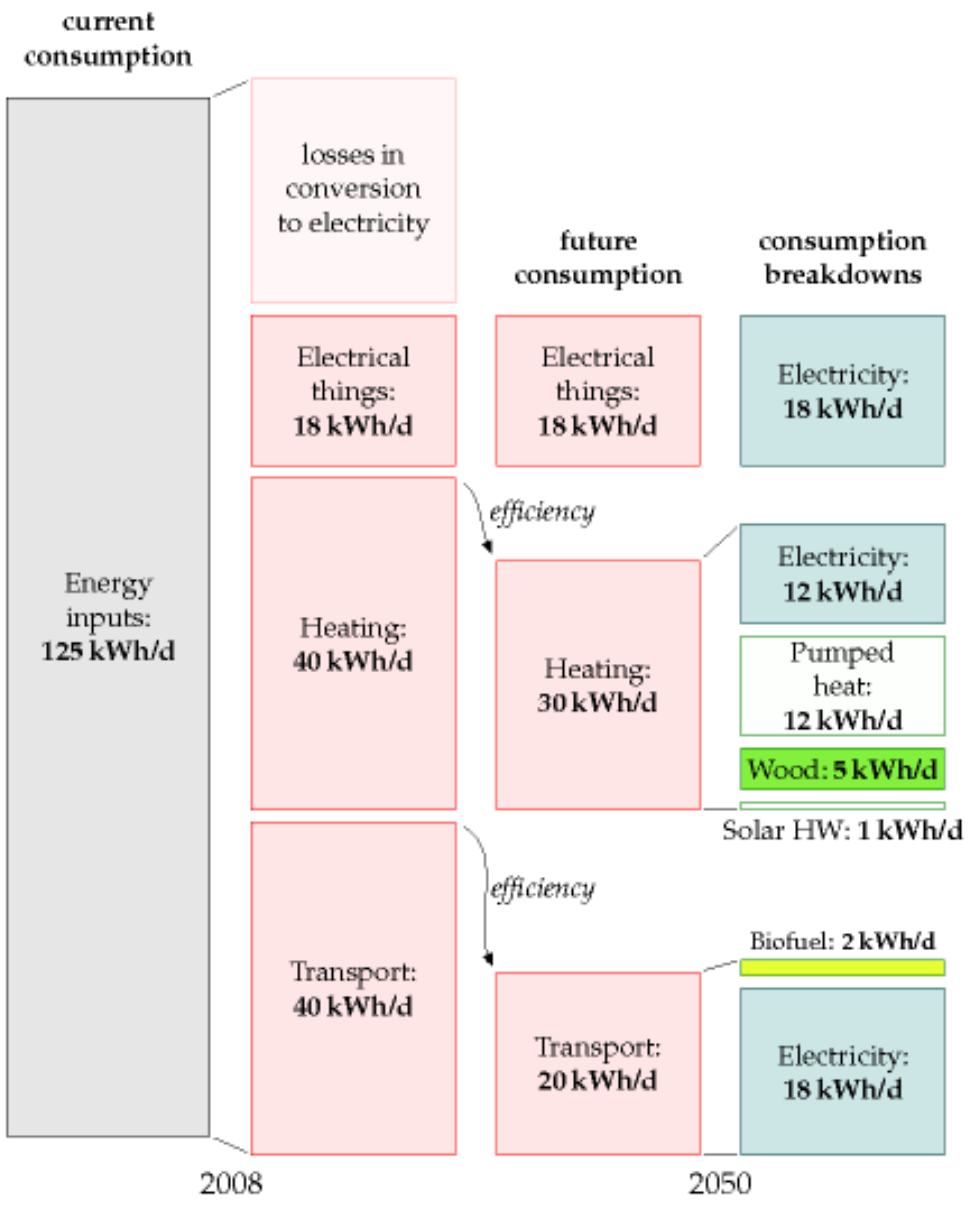
Source: SEI Energy in Ireland 1990 – 2007, 2008 Report

Decarbonising Electricity



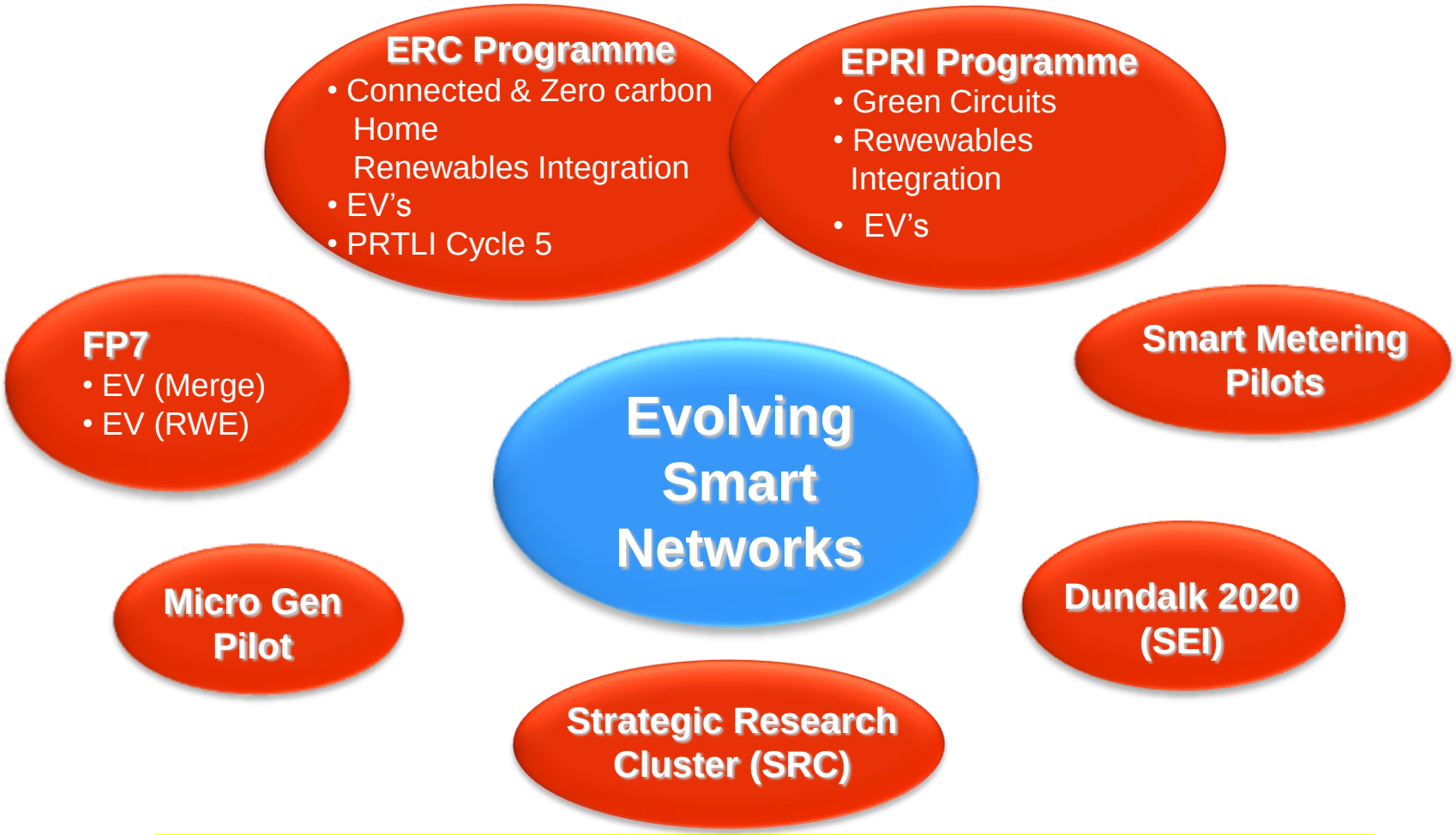
As electricity is decarbonised, it becomes the minimum-carbon solution for transport and heating





By 2050 we will all be driving electric cars and heating our homes with electric heat pumps - This needs to be understood by policy makers

Smart Networks R&D Projects



Critical Enabler of Smart Networks Strategy

Thank you

FOR GENERATIONS
TO COME

John Campion
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