



Energy for
generations

ESB Innovation

THE “FUTURE” ENERGY LANDSCAPE

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Energy for generations

Macro *Energy* Trends

Decarbonisation Must Happen

- Destination Clear
- Path Uncertain
- Pace is Uncertain



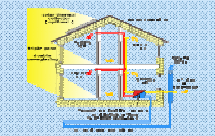
Renewables Unstoppable

- Costs Reducing
- Efficiency Gains
- Flexibility solutions



Demand Stalled

- NZEB/Passive Buildings
- Demand Management Technology
- Data Centre offset



Prosumer Take-Off

- Smart Connected Homes
- DSR Availability
- Heat & Transport



New Business Models

- Multiple Players
- Service/Data Organisations
- Towards 'Free' Electricity




Our Energy World is Transforming, With or Without Us




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Ireland's Greenhouse Gas Emissions

 Emissions Trading Scheme (ETS) (27%)

 Non ETS (73%)


15% 

19% 

Other (Non ETS) 6%

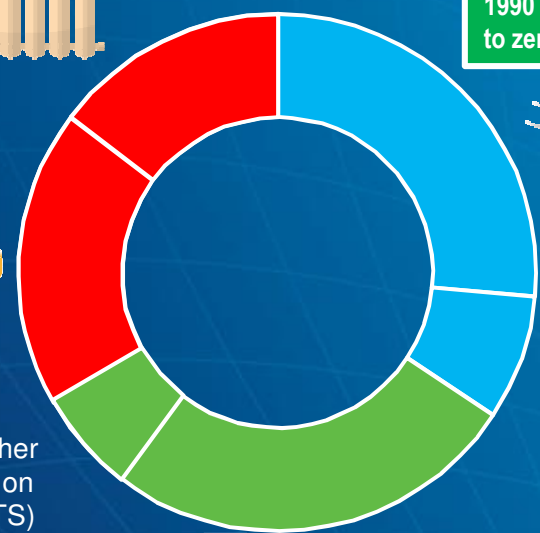


33%


19%

Other (ETS) 8%

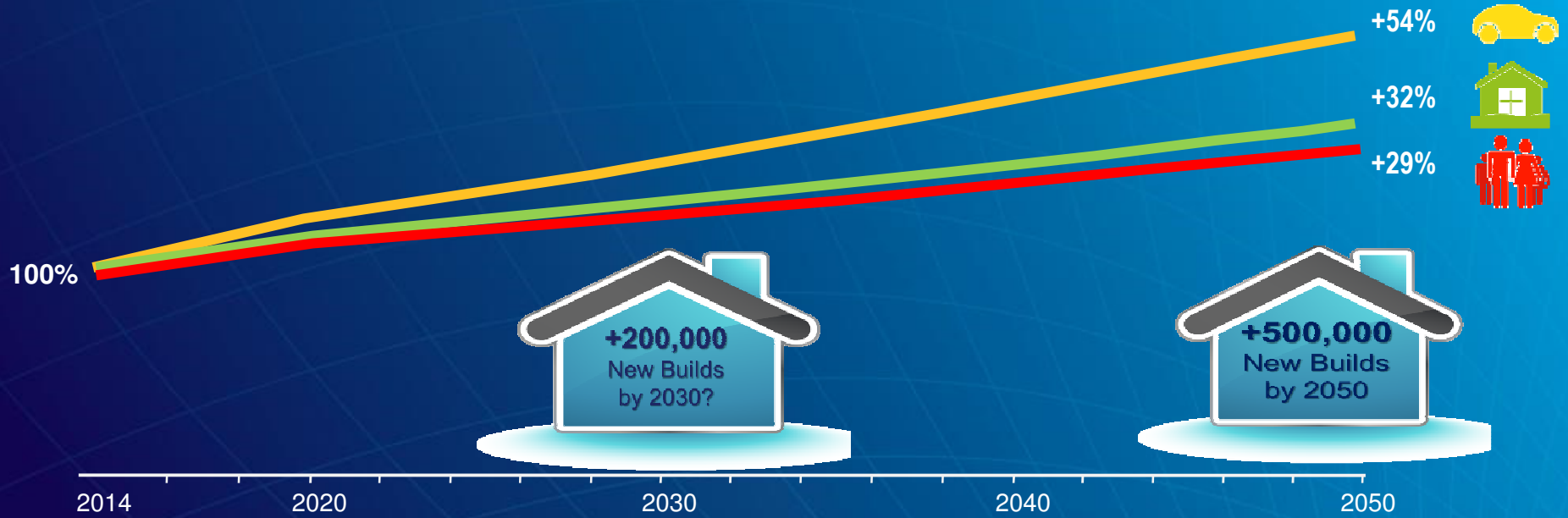
Carbon intensity of electricity has halved since 1990 and is on a pathway to zero



Consumption Projections



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Growing Demand



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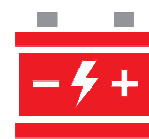
The Role of Electrification



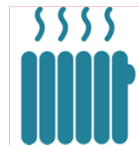
Transport



20-25% efficient



75% efficient



Heating



70- 90% efficient

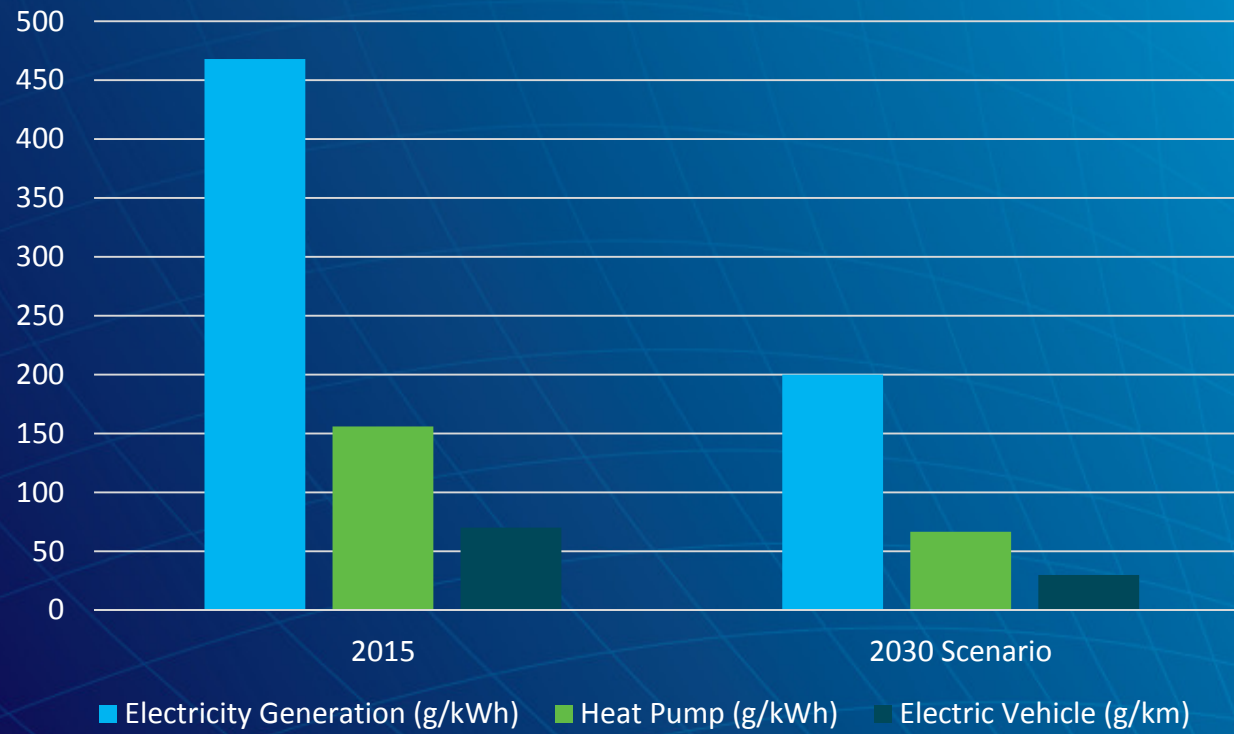


300% efficient

Smart heat and EVs have a major role in meeting
energy efficiency targets

Path to decarbonisation

CO2 Emissions



ESB Strategy



Empower Customers



Low Carbon Generation & Storage



Smarter & Reliable Networks



Electrify Heat & Transport

Empower Customers

SMART ENERGY SERVICES
Powering the Potential of Your Business

#ESBinnovates

The image shows a promotional graphic for ESB Smart Energy Services. It features the ESB logo at the top left, followed by the text 'Energy for generations'. Below this is the main heading 'SMART ENERGY SERVICES' and the tagline 'Powering the Potential of Your Business'. At the bottom, there is a circular collage of images showing people in various settings, and the hashtag #ESBinnovates.



The screenshot shows the Electric Ireland website interface. At the top, there is a navigation bar with the 'electric Ireland' logo, 'Online Billing Login | Register', and buttons for 'Electricity', 'Gas', and 'Energy Services'. A prominent banner features a house with solar panels and the text 'Control your home heating from anywhere with climote'. Below this, a section titled 'Save money with Solar PV Panels' includes the text: 'Your home's roof could be saving you money right now. By installing our Solar Photovoltaic (PV) panels your home can generate clean, green renewable energy from daylight - a free and natural resource.' To the right of this text is a diagram of a house with solar panels on the roof, a battery storage unit, and a light bulb, with arrows indicating energy flow from the sun to the panels and then to the battery and light.

Empower Customers



Low Carbon Generation and Storage



Innovation



FREE ELECTRONS

FREELECTRONS.CO

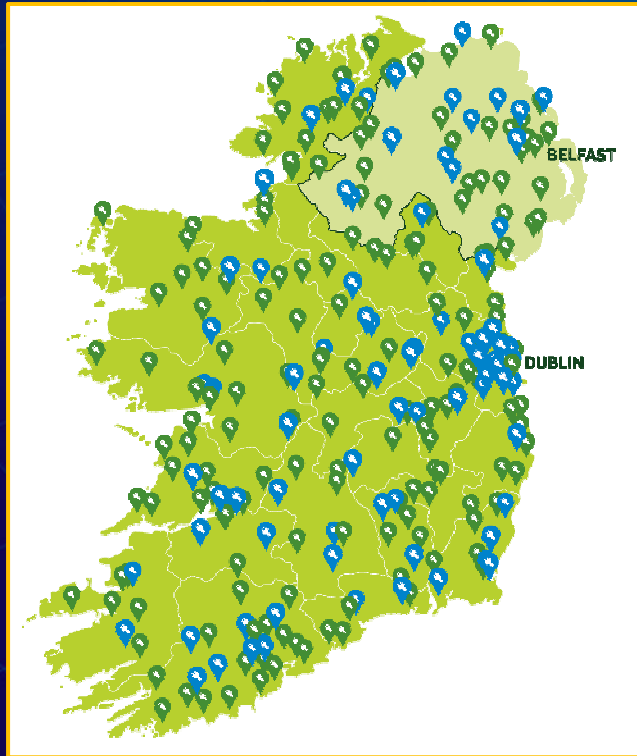
<p>AusNet Services www.ausnetservices.com.au</p>	<p>دولة الإمارات العربية المتحدة سلطنة دبي سلطنة دبي Dubai Electricity & Water Authority (DEWA) www.dewa.gov.ae</p>	<p>Energy for generations Electricity Supply Board (ESB) www.esb.ie/innovation</p>	<p>Energias de Portugal (EDP) www.edp.pt www.edpstarter.com</p>
<p>innogy Innogy New Ventures LLC www.innogy.com</p>	<p>origin Origin Energy www.originenergy.com.au</p>	<p>SPgroup SP Group spgroup.com.ar</p>	<p>TEPCO Tokyo Electric Power Company Holdings (TEPCO) www.tepco.co.jp/en/</p>

Transport

Extensive Island-wide Network



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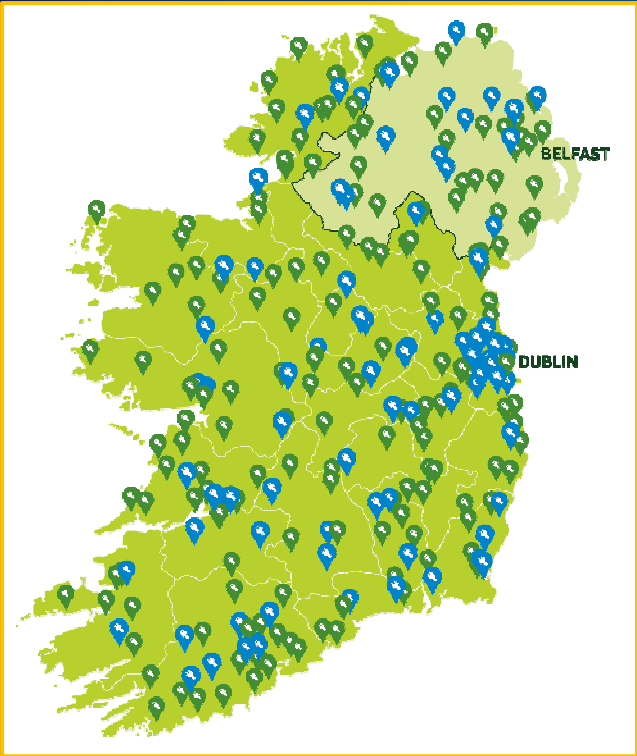
- World's First Nationwide EV public charging infrastructure
 - 90 Fast Chargers (50kW)
 - Over 1,100 Standard Chargers (22kW)
- Multi-jurisdictional allowing cross-Island travel
 - Public EV charging in the majority of communities with >1,500
 - DC 50kW every 50km on all major inter-urban routes (initially Japanese Chademo only; latterly also with German Combo2)

Transport

Extensive Island-wide Network



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www.GRIDbot.net

Heat

- Fully Passive All Electric Home – Durkan Residential



SILKEN PARK
CITYWEST



THE 'ALL ELECTRIC HOUSE'

This house has been designed in conjunction with Electric Ireland and promotes the electrification of heat and supports the use of electric vehicles with an EV Charging Station on each house.

Consistent with our design approach outlined above, we collaborated with Electric Ireland to design a house that has a low energy demand and chose appliances and systems which assisted us in delivering a house with a total energy demand for all heating and electrical supply of 2372 kWh/y.

The house has no gas standing charge and a dual tariff meter promoting the use of free off peak night electricity with Electric Ireland, which both reduce the energy costs of running the house.

We have estimated that the average total energy cost of the house will be approximately €770 per annum or only €65 per month.

The house has been 'future proofed' to take solar PV panels and storage batteries in order to become a Net Zero Energy Building with 100% self-consumption and zero energy costs.

Heat

- Fully Passive All Electric Home – Durkan Residential
- Superhomes Deep Retrofit – Tipperary Energy Agency

superHOMES

50% GRANT TO RETROFIT YOUR HOME

What are the features of a SuperHome?

- 1 Cavity wall, attic, flat roof, external wall insulation
- 2 Air tightness throughout the house
- 3 High performance windows and doors
- 4 Demand Control Ventilation
- 5 Air Source Heat Pump
- 6 Solar PV Panels on roof

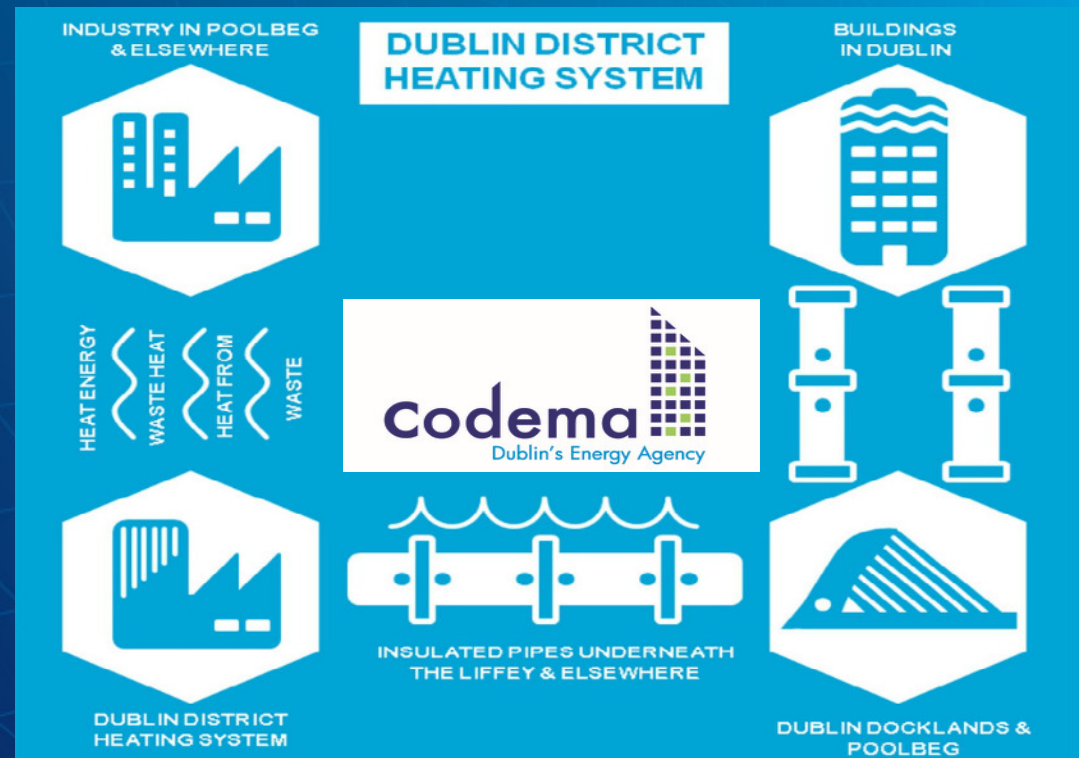
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AN INITIATIVE OF **energy**
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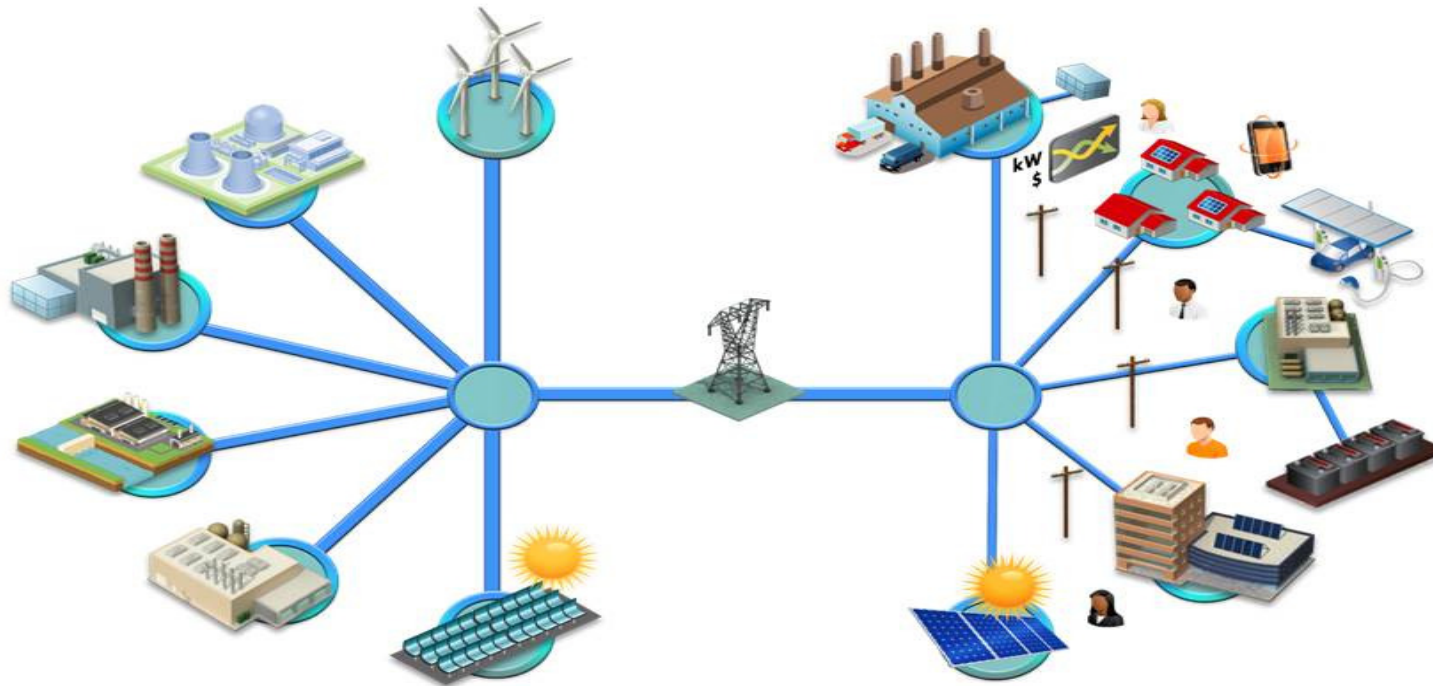
Heat

- Fully Passive All Electric Home – Durkan Residential
- Superhomes Deep Retrofit - Tipperary Energy Agency
- District Heating



Smarter and Reliable Networks

Reimagining the Power System of the Future



Less Dispatchable, Less Forecastable, More Dynamic



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Thank You