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## **Decarbonising Transport – the key role of alternative fuels and technologies, including Electric Vehicles - An ESB Perspective**

*20 June 2017*

*Paul Mulvaney, Executive Director for Innovation*

*Denis O’Leary, Head of Smart Energy Technologies*

### **EV and Climate Change**

Climate Change is a significant threat facing society and Ireland has committed itself to an 80-95% reduction (when compared to 1990 levels) in emissions from the energy system by 2050. For Ireland to meet this goal, which is a European Union obligation, the decarbonisation of the heat and transport sectors needs to proceed rapidly. Greenhouse Gas (GHG) emissions are increasing as more journeys are taken by car. Ireland needs to reduce emissions without interfering with competitiveness and the economy.

Even when using electricity generated from the current mix of fuel inputs, electric vehicles are far more carbon efficient than internal combustion engine cars and can play a huge part in reducing GHG emissions.

With zero tailpipe emissions, EVs also reduce air pollution which is a major health issue in urban areas. (Indeed four capital cities; Paris, Mexico City, Madrid and Athens are to ban diesel vehicles by 2025 for air quality reasons).

EVs, because they can use energy generated from renewable sources, such as wind and solar, will allow Ireland to strengthen its fuel security and reduce dependence on imported fossil fuels.

A further major benefits of electric vehicles is the ability to recharge at home using cheap night rate electricity thus cutting motoring costs.

### **The Critical Role of Publicly Available Electric Vehicle Charging Infrastructure**



Since 2010, ESB has been deploying and operating Ireland's world class national EV charging infrastructure.

The provision of nationwide and publicly available charging services to EV drivers is a multi-faceted task that requires the following inter-related and inter-dependent components including:

- A. A nationwide network of physical charge points (each with their own operating software)
- B. Ensuring continuous "always on" telecoms connectivity to and from these charge points
- C. A Charge Point Management System
- D. Customer Support Service (e.g. call centre and online)
- E. Operations and maintenance systems and contractors to respond to and prevent outages
- F. Provision of Digital tools to provide "real time" charger status data to drivers
- G. Secure Customer Billing and Payments systems
- H. User Education and Marketing

The Irish charging infrastructure of almost 1,000 chargers enables EV Drivers to travel nationwide.

With a presence in almost every community with more than 1,500 inhabitants and fast charger coverage every 60KM along Ireland's main arterial routes, this network provides a highly visible signal to potential buyers of EVs that they will be able to use a robust network of charging points across Ireland. This is a necessary precursor for the widespread adoption of EVs.

While the infrastructure roll out was initiated by ESB with some EU Funding, the bulk of the support for this network has come from the Commission for Energy Regulation (CER) who supported the R&D in order to understand the long-term impact that the mass adoption of EVs would have on the Irish electricity grid.



This pilot phase was completed with the production by ESB of a 600 page report and covering both the technical and economic aspects of electric transportation.

This work detailed findings and recommendations across 43 areas grouped in 7 work packages. This project will assist in the future planning of the Irish electricity transmission and distribution networks to accommodate electric transportation.

This work is at the cutting edge in international terms and components of it are already being referenced world-wide by research organisations such as the *Electric Power Research Institute* in the United States.

**However, since completion of this pilot phase, ESB has been funding the networks' operation and maintenance from its own resources.**

At the request of CER, ESB suspended the introduction of driver fees for use of this infrastructure since late 2015 and it remains free for users.

The future ownership and regulatory/funding model for this national EV infrastructure also remains uncertain pending the completion of the CER's public consultation process.

**This consultation closed in November 2016 but the lack of a determination on ownership is creating great uncertainty. This uncertainty impedes any future investment plans for the network, including its operation and maintenance.**

Given the limited number of electric vehicles currently in Ireland, the continued operation of this EV charging network is not viable on a commercial basis at this stage.

### **Current Status of Electric Vehicle Market in Ireland**

Currently, there are over 4,500 Battery Electric Vehicles and *Plug-in Hybrid* Electric Vehicles across the island of Ireland – with 2,800 in the Republic of Ireland. In addition, the choice and range of electric vehicles has greatly expanded - with over 15 EV models now available in Ireland. However, as with any new technology it takes time for consumer acceptance and that is why



Government intervention is necessary to kick start the market. Infrastructure is a necessary but not a sufficient condition to drive EV uptake.

In countries that have achieved much greater uptake of EVs e.g. Norway (140,000 EVs) UK (>100,000 EVs) and Netherlands (>110,000 EVs) a greater range of policy incentives have been employed. The Dutch have indicated that they will ban the sale of internal combustion engine cars in 2025.

These measures do not necessarily have to be expensive or have to be in place for a long time.

A three year period with free parking while charging and free or reduced tolls coupled with an information campaign on the benefits of EVs could potentially have a dramatic impact on EV sales.

These policy changes coupled with the rapid advancement in battery and car technology, could drive a major shift in consumer behaviour. Given that the average car journey distance in Ireland is 26.4km per day ([CSO – 2014](#)) and the distances between cities are quite short (Dublin – Cork, 266 km and Dublin – Belfast, 166km) electric vehicles are perfectly suitable for the majority of people.

While there are a number of incentives already in place to support the adoption of electric vehicles, there are a number of additional incentives which could be very helpful in increasing electric vehicle sales in Ireland and which have worked well in other jurisdictions. These include:

- Free tolls at government owned toll roads – M50, Port Tunnel and East Link in Dublin for a period of either three years or until we have an EV fleet of more than 30,000 cars in Ireland
- Instituting a grant program for EV home chargers (similar to UK model)
- Creation of a stable regulatory and funding model to support investment in Public EV infrastructure
- Zero emissions - zero road tax (currently €120)
- CO2-based Benefit-in-Kind taxation for company vehicles with a reduced rate for EVs



ESB believes that the electrification of transport using clean indigenous energy will be a part of tackling climate change as well as meeting other societal needs.

International experience now shows that the mass adoption of EVs can be achieved if appropriate supportive public policies are put place.

However, confidence at the consumer and industry level is critical. A robust and extensive national public EV charging network is necessary, but in and of itself is not a sufficient condition towards achieving this long-term transformation.

Working with other stakeholders such as the CER, ESB put in place an advanced nationwide network that can provide one of the foundations for EV adoption – and we are continuing to operate and provide service on this network on a short-term basis.

However what we need is a sustainable business model that covers the costs of running the network. This will necessarily include some combination of a user subscription and public funding underpinning its operations.

The current situation is not sustainable and it is critical that appropriate arrangements are put in place on a timely basis that will support investment and innovation – and, in so doing, allow Ireland to maintain its pioneering position in this area.

ENDS

For queries contact:

Seán Murphy, ESB Public Affairs, (086)8198766/ sean.murphy5@esb.ie

**About ESB's electric vehicle charging network:**

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