



Commission for Energy Regulation

An Coimisiún um Rialáil Fuinnimh

Decision on ESB Networks Electric Vehicle Pilot

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Abstract:

The CER published a consultation paper on 25 October 2013 entitled “*Consultation Paper on ESB Networks Proposed Electric Vehicle Pilot*” – [CER/13/240](#). This paper proposed to allow ESB Networks recover €25m through DUoS for the purposes of the development of an electric vehicle pilot project which would be designed to assess and report on the impact of electric vehicles on the Irish distribution system.

Twenty three submissions were received in response to the consultation. The CER has now reviewed these submissions and outlines its decision in relation to the electric vehicle pilot.

The submissions received highlight the overall support for the pilot from the majority of respondents.

Target Audience:

This decision paper is for the attention of members of the public, the energy industry, the motor industry, customers and all interested parties. It will be of particular interest to the system operators for electricity consumers and stakeholders in the electric vehicle industry.

Related Documents:

- CER/13/240: Consultation on ESB Networks Proposed Electric Vehicle Pilot
- ESB Networks Electric Vehicle Pilot – R&D Project Submission Summary
- ESB Networks, Preparation for EV’s on the Distribution System – Pilot Project Implementation Document

Executive Summary

In 2013 ESB Networks (ESBN) made a submission to the Commission for Energy Regulation (the CER) proposing to undertake a pilot on Electric Vehicles (EVs). The pilot entails the roll out of a charging infrastructure by ESBN to allow it to assess the impact of EVs on the Irish distribution system. In the submission ESBN requested the recovery of some of the costs associated with the pilot project from the distribution customer (DUoS customer – Distribution Use of System).

On 25 October 2013, the CER published a consultation paper entitled “Consultation Paper on ESB Networks Proposed Electric Vehicle Pilot” – [CER/13/240](#). In this consultation paper the CER acknowledged Ireland’s target to have 10% of passenger cars and light commercial fleet powered electrically by 2020. The CER also acknowledged the potential impact of EVs on the distribution system. The CER recognised that there were potential positives associated with an increased uptake of EVs such as increased demand side participation and improved use of renewable energy. However the CER also noted potential negatives, such as a potential impact on security and reliability of supply. Given that EVs could develop into a large new demand load on the distribution system in the coming years, it was the CER’s view that it would be important to study the impacts of EVs on the distribution system in order to ensure that any system issues associated with EVs can be addressed or managed in the future.

ESBN requested €25m to fund the pilot, €6m from its previously approved R&D budget for PR3 and an additional separate €19m which would also be recoverable through the DUoS tariff. In the consultation paper the CER proposed to allow the recovery of €25m subject to the pilot meeting certain criteria detailed in the consultation paper.

Twenty three responses were received to the consultation. Twenty two out of the twenty three respondents responded favourably to the proposed electric vehicle pilot. The CER has now decided to approve the proposal from ESBN for the pilot project on EVs and to recover the associated costs of the pilot project, to a maximum of €25 million from DUoS over the remainder of the PR3 period. The decision also outlines the requirement on ESBN to prepare and publish a report on the findings of the EV pilot, along with any recommendations to address any impacts from EVs on the distribution system. The decision is subject to the criteria outlined in Section 2 and 3 of this paper, which includes a requirement to minimise costs, which will be subject to normal price review, and to allow for the assets to be sold once the trial is complete. The impact on and benefit to the electricity customers from EVs must be reported on in the final assessment of the trial.

1.0 Introduction

1.1 The Commission for Energy Regulation

The Commission for Energy Regulation (CER) is the independent body responsible for overseeing the regulation of Ireland's electricity and gas sectors. The CER was established and granted regulatory powers over the electricity market under the *Electricity Regulation Act 1999*. The *Gas (Interim) (Regulation) Act 2002* expanded the CER's jurisdiction to include regulation of the natural gas market, while the *Energy (Miscellaneous Provisions) Act 2006* granted CER powers to regulate electrical contractors with respect to safety, to regulate to natural gas undertakings involved in the transmission, distribution, storage, supply and shipping of gas and to regulate natural gas installers with respect to safety. The *Electricity Regulation Amendment (SEM) Act 2007* outlined CER's functions in relation to the Single Electricity Market (SEM) for the island of Ireland. This market is regulated by the CER and the Northern Ireland Authority for Utility Regulation (NIAUR). The CER is working to ensure that consumers benefit from regulation and the introduction of competition in the energy sector.

1.2 Purpose of this Paper

On 25 October 2013 the CER published a public consultation paper on ESB Networks proposed Electric Vehicle Pilot ([CER/13/204](#)). The purpose of this paper is to outline the summary of the responses to the consultation, to outline the CER's position on the matters raised and the CER's decision on this matter.

1.3 Responses Received to the Consultation

The Commission received twenty three responses to the consultation paper. Submissions were received from the following organisations or individuals and have now been published on the CER's website alongside this decision paper:

1. AIB
2. Bord na Móna PowerGen
3. Codema
4. Dublin City Council
5. EirGrid
6. Electricity Association of Ireland (EAI)
7. Electric Ireland
8. Enterprise Ireland
9. ESB Networks
10. Electric Vehicle Association of Ireland (EVAI)
11. Paul Hunt
12. IBM
13. IDA Ireland
14. Irish Wind Energy Association (IWEA)
15. MD Zero Carbon Futures

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16. Nissan Ireland
17. Northern Ireland 'ecar' Project
18. William J Pierce
19. Renault
20. Smart Grid Ireland (SGI)
21. Telecommunications Software and Systems Group (TSSG)
22. Tipperary Energy Agency (TEA)
23. TRIP – Centre for Transport Research, Trinity College Dublin

1.4 Structure of this Paper

This response and decision paper is laid out in the following manner:

- Section 1 provides an introduction to the CER and provides background information to this decision paper.
- Section 2 provides an overview of the responses received.
- Section 3 outlines the CER's decision with regards to the ESN Pilot and the considerations which the CER has taken into account when arriving at this decision.
- Section 4 outlines the conclusion of this paper and the next steps.

Queries relating to this decision should be addressed to:

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2.0 Summary of Responses Received

2.1 Recovery of Costs

In CER/13/240 the CER proposed to allow ESBN recover a total of €25m for a pilot project on EVs. The €25m was composed of €6m from the already approved PR3 R&D budget and an additional separate €19m which would be recoverable from the DUoS tariff.

The majority of responses received were in favour of this recovery, but an emphasis was placed on the need to conduct the study in as efficient a manner as possible. One respondent noted “It will be important that the pilot is delivered as efficiently as possible and that any consequential customer charges arising are monitored and kept to a minimum; and certainly not to exceed the ‘absolute maximum’ of €25m as proposed by CER.”

One respondent registered strong disagreement with the proposal to allow the additional revenue to ESBN. The respondent noted that the policy behind the pilot is not a regulatory responsibility. “The requirement to conduct and fund this pilot exercise arises from a policy decision. It is primarily the Government’s responsibility to facilitate and ensure the implementation of this policy.”

CER Position

It is the CER’s view that there is a need to determine the impacts of EVs (both positive and negative) on the electricity system. This is an important matter for electricity consumers who have invested considerably in recent years in a high quality, robust electricity distribution system. The system however was not designed with a mind to significant levels of EV charging and the associated changes to demand patterns which this would bring. Therefore in advance of any large scale deployment of EVs, which may or may not happen in the coming years, driven by government policy, it is important that the likely impacts of EVs on the electricity system are understood. The CER is of the view that this work is the responsibility of the distribution system operator. ESBN as the licenced distribution system operator is responsible for building, operating, maintaining and developing the electricity network, and as such it is incumbent upon it to assess if there were to be any impact on the electricity network. It is for this reason that the CER considers the proposal from ESBN to be a regulatory issue and therefore it is appropriate that some of the monies associated with carrying out this investigatory trial are recovered from system users. The CER agrees with the respondent that policy around the support and deployment of EVs is a government rather than regulatory concern; however the impact that this policy may have on the electricity system and the quality of supply for customers who use that system is a regulatory issue.

The CER agrees that the pilot should be conducted in as efficient a manner as possible. Any costs incurred during the pilot beyond €25m will be met by ESBN while there are strict requirements associated with the pilot including the need to fully report on outcomes.

2.2 Sale of Assets

In CER/13/240 the CER stated that the infrastructure developed over the course of the pilot would not be added to the ESNB Regulatory Asset Base (RAB). Once the pilot was completed, the CER would discuss the future use of or sale of the infrastructure developed, taking into account the DUoS customer investment and the results of the trial.

ESBN in response requested that the CER consider the following points before making a decision on the future use of or sale of the infrastructure:

- “Competency to manage the electrical and physical assets associated with Electric Vehicle charging points located on public land;
- The independence of choice of supplier and maintenance of full retail competition;
- Maintaining a long term commitment to purchasers of Electric Vehicles;
- Potential costs to third parties in setting up connection points including standing charges and connection charges;
- Commitment of suppliers and ESB Networks to the development of the IT infrastructure to support Electric Vehicle charging and its linkages to other systems.”

One respondent agreed that the options regarding ownership should be considered, but noted that “there is a need to consider at an early stage the transition to a final ownership structure. This is required both to provide certainty to EV owners regarding the long term provision of this critical infrastructure need from their part, to encourage continued development and innovation by indigenous businesses offering equipment and services in this area and to avoid stranding any of the charging infrastructure asset that has been established as part of the pilot. ”

CER Position

The CER notes the views submitted regarding the status of the ownership of the assets developed during the trial. The CER will keep this issue under review over the course of the pilot, and if appropriate it will make a decision on this before the end of the pilot. However at this point, it remains the position of the CER that the infrastructure developed should not be added to the ESNB RAB and the assets may either be sold by ESNB or maintained by it outside of the regulatory structures.

2.3 Stakeholder Participation

Some respondents emphasised the importance of stakeholder participation in the pilot. One respondent, EirGrid the transmission system operator (TSO), noted that it should be involved to “fully quantify the benefits for consumers of Electric Vehicles on the system. This includes consideration of factors including demand side management, curtailment optimisation and identification of possible system reinforcements.” EirGrid recommended that its expertise is recognised in the governance and programme scope of the pilot.

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One respondent, Dublin City Council, highlighted the need for consultation with the relevant Dublin City Council departments such as the Roads and Traffic Department and the Planning Department.

A number of respondents encouraged ESBN to engage with retail suppliers and key stakeholders to consider charging solutions/tariff structures that will support mobile charging behaviour.

CER Position

The CER notes the points made by respondents and considers that these points are primarily related to project governance and management by ESBN. Accordingly it is appropriate that ESBN engage with these stakeholders both prior to and over the course of the pilot in order to achieve the most reliable suite of results and in order to ensure that all relevant considerations have been taken into account. The CER notes that ESBN has recognised the importance of engaging with key stakeholders. It stated in the R&D summary document that the trial will involve “working with EirGrid and Suppliers to develop pricing structures and incentives to encourage smart charging while ensuring the limitations of local network are accommodated” and “for any meaningful and informative trial, it is important that supplier consultation and involvement is maximised to identify likely tariff offerings and post-trial market structures as would be enabled by EV infrastructure.”

The CER agrees that involvement of key stakeholders is important for the success of this pilot. The CER agrees that ESBN should consult with the relevant local authority when planning the location of public charging points. The CER is of the view that EirGrid, as the TSO, should be kept up to date with the progress of the pilot. ESBN should also inform EirGrid of any issues which arise which may impact it in its role as TSO.

2.4 Interoperability

Several respondents highlighted the importance of interoperability of the charging infrastructure with existing and emerging international standards, which would mitigate expenses further down the line. One respondent noted that the infrastructure should be capable of integrating with the smart grid and include time interval metering, remote management, and load management response capability.

Two respondents requested that the pilot is developed in conjunction with the Northern Ireland electric vehicle project, to ensure all island interoperability. One of these respondents notes “the development of infrastructure as part of the trial be developed in conjunction with the Northern Ireland ecar Project to ensure commonality of standards which would support all-island interoperability.” Another respondent, advocated interoperability with the UK as “UK tourist visitors amount to 2.8m people per annum, this is approx. 45% of all visitors to Ireland.”

CER Position

The CER agrees that achieving interoperability and particularly all-island interoperability should be an important element of this trial. The CER notes that ESBN acknowledges in the R&D document that working with international

collaborators is essential to address the issues relating to standards and interoperability. ESNB also notes in the R&D document that it will work with a range of stakeholders “to leverage different areas of expertise and experience, and ensure that international best practice is reflected in future plans.” However the design of the infrastructure is not the CER’s primary concern in this trial. Therefore it is up to ESNB to work with the appropriate Northern Ireland, Great Britain or international agencies involved in the promotion of EV charging infrastructure to attempt to safeguard interoperability. From the CER’s point of view, interoperability should facilitate greater use of the charging infrastructure and so should facilitate a more successful and robust trial.

2.5 Reporting

In CER/13/240 the CER proposed that ESNB provide the CER with an annual report outlining progress of the pilot, and a final report at the end of the trial outlining in detail the results of the pilot.

The reporting requirements were endorsed by several respondents. One respondent notes “given the added cost of this research for electricity customers, the DSO should be required to publish progress reports at key milestones so that the ultimate funders are kept informed of developments.”

One respondent noted that the results of the pilot should be publicised at industry events, to the Oireachtas subcommittee on Transport, and dissemination of the information to the general public by television.

CER Position

The CER has decided that a report should be provided annually to the CER on the progress of the pilot. A final report should also be provided at the end of the trial which outlines in detail the results of the pilot. Where appropriate the report should also outline recommendations and solutions particularly where impacts on the distribution system from EV charging have been identified. These reports will be published on the CER website and on the ESB eCars website. The first report should be submitted to the CER by end of 2014.

2.6 Scope of the Pilot

Some respondents noted that the scope of the trial should be widened to include encouraging the uptake of EVs in Ireland. One such respondent noted that the “trial should not be constrained exclusively to the technical challenges related to EVs but should consider and trial options to promote and accelerate the adoption of EVs.” Another respondent requested that the pilot include “research on the wider socioeconomic benefits to the switch from foreign fossil fuels to indigenous renewable energy for transport.”

CER Position

The pilot proposed by ESNB entails the rolling out of a charging infrastructure so that ESNB, as the DSO, can fully assess the impact of EVs on the Irish distribution system. ESNB as the licenced DSO is responsible for building, operating,

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maintaining and developing the electricity network. It is not the role of the DSO to promote the use of EVs. In addition the CERs role in approving monies to the DSO does not allow it to extend this approval of monies to the promotion of the use of EVs.

The primary responsibility of the CER is to protect the energy customer, and as such the CER emphasises that the primary focus of this pilot is to understand how EV charging will impact on the electricity system (positive and negative) in order to consider how to maximise any longer term benefits for the electricity customer and minimise any longer term impacts. While ESN should make public the results of the trial through its annual reports to the CER, the focus of this pilot should not be the promotion of the use of EVs.

3.0 CER Decision

3.1 CER Decisions

The CER has considered the responses received to the consultation paper and has now arrived at its final decision on this matter.

Given Ireland's target to achieve 10% of EVs by 2020, the CER recognises that the distribution system must be ready to support the connection of EVs. The CER also notes that the European Commission's Clean Power for Transport Package, includes a proposed Directive which further promotes EVs and would mandate Member States to provide an appropriate number of public charging points for EVs.¹ Notwithstanding the CER's view that the charging infrastructure itself is not part of the distribution network, the CER is of the view that it is important to determine the likely impacts of EVs on the distribution system. For this reason, the CER agrees that an extensive pilot project is required to ensure that the increased load that will be created by EVs is accommodated in the most efficient way possible, without compromising safety, security and reliability of supply and with the least possible impact on the customer. Given this policy background, it is necessary to gain an understanding of the positive and negative impacts of EVs on the wider electricity system which will ultimately carry the electricity used to charge EVs. It is therefore the view of the CER that the €25m requested by ESNB for the EV pilot should be recoverable from the DUoS (Distribution Use of System) tariffs, subject to the following considerations:

- The pilot must focus on the impact of EVs on the existing network under a range of scenarios such as rural and urban network and various network topologies and locations;
- The pilot must take into account relevant safety risks associated with the roll out of installations of EV charging points. This includes risks relating to the distribution system and also relating to the safety of work completed on the customer side of the meter;
- The pilot project must quantify the benefits of EVs on the network, such as demand side management and curtailment optimisation. The pilot needs to identify what, if any network reinforcements will be required in the future if EV penetration reaches 10% by 2020. The impact on and benefit to electricity customers from EVs must be reported on in the final assessment of the trial;
- ESNB should take all measures to minimise the cost of the undertaking of this pilot and that any savings which are made will be passed to the DUoS customer.
- ESNB must design the EV pilot such that the assets and infrastructure could be sold to a third party. This option will be considered at the end of the trial as part of the options to minimise costs to consumers.

¹ <http://ec.europa.eu/transport/themes/urban/cpt/>

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- ESBN should take into account the issues regarding stakeholder involvement and interoperability raised in the responses to the consultation and work with stakeholders to ensure the best outcomes for consumers from the trial.

3.2 Recovery of Costs

The CER has decided to allow ESBN recover €25m for the pilot which will be composed of €6m of its existing R&D budget approved in PR3 and a further €19m to be allowed by the CER to be recovered from the DUoS customer. Subject to the criteria set out in section 3.1 above being met, the CER has decided that there should be an increase in the R&D budget. The CER is of the view that €25m will be the absolute maximum recoverable to ESBN through the DUoS tariffs over the course of this project. Any overrun cost of the pilot beyond €25m will be carried by ESBN. Any savings accrued if the cost of the pilot runs under will be passed to the customer.

3.3 RAB

The CER has decided that any infrastructure developed over the course of the pilot will not be added to ESBNs RAB at this point. The CER will consider the future use of or sale of the infrastructure developed over the course of the trial. However, in order to take into account the level of DUoS customer investment and the results of the trial, it may not be appropriate to make a decision regarding this until the trial is finished.

3.4 Reporting

The CER has decided that ESBN should provide the CER with annual reports on the progress of the pilot including a final report at the end of the trial outlining in detail the results of the pilot and any recommendations as appropriate. This report will be published on the CER website. The CER requests that the first such report should be provided to the CER by the end of 2014.

4.0 Conclusion and Next Steps

In conclusion the CER will allow ESNB recover €25m from DUoS tariffs for the purpose of carrying out the pilot. Any costs incurred throughout the period of the trial over this amount will be carried by ESNB. The pilot must focus on maximising long term benefits for the DUoS customer. ESNB should submit its first report on the progress of the pilot by the end of 2014.

For further information on this decision, please contact:

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