ireland electrified

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Dynamic DUoS Tariffs for Electrification

Introduction

Carbon neutral heat and carbon reduction of transport form part of the state's Climate Action Plan. With this there are further targets in terms of emissions reductions, and targets on ESBN in terms of developing flexible demand. The progress of electrification is interlinked with various obligations and its growth has broad benefits to the consumer, to the electricity market and to the operation of our electricity grid. However limited policy is in place to support the transition from fossil fuels to electrification in terms of the electricity market structures. Our electricity grid will be the backbone of Irelands low-carbon future, it will be the conduit for our home heating, for our Industrial heat and a key infrastructure to power our transport sector.

Policy should encourage the increased usage of our electricity grid to the advantage of the system operators, the environment, security of supply, and the end customer. Two areas of policy reform that require reform include:

1. Encouraging flexible electrification in line with market signals and supporting increased demand for variable renewable electricity.

2. The electricity to gas price ratio.

The current electricity methodology for applying tariffs and charges discourages electric heat and transport.

A large proportion of electricity costs, such as DUoS from ESBN, are set or approved by State oversight in some form but there is no mechanism in the current mechanism that is used to provide incentives for electrification to acknowledge its broader benefits. Growing low carbon heat and transport through electrification can be aided directly by System Operators to instil long-term price stability against fossil fuels while rewarding what electrification is providing to the grid such as flexibility and reducing emissions for which the state will face fines to 2030. Policies on electrification should recognise the value that this technology provides to the wider electricity market and to managing the grid. Policy should see electrification as not simply an addition to demand but adding broad benefits such as a service provider to the growing variable renewable electricity generation capacity.

The current DUoS tariff comprises 43-52% of the pass-through costs on the large energy user. The revenue structures for ESBN are approved annually by CRU and paid by consumers through the use of the system. The more electric heat and electric transport we have on the electricity grid the greater the customer base for the System Operators. Increased electrification can mean increased tariffs for the system operator. So incentivising

electrification as an alternative to imported fossil fuels should be developed. At present however there are no incentives within the DUoS tariff composition to encourage renewable heat and transport. The tariff structure in fact was developed in a time of a different electricity grid with limited renewables, and little need for demand flexibility. Rewarding flexibility for example in tariff reforms means helping address curtailment and constraints on the grid, meaning greater more efficient use of the renewable electricity we already produce and means displacing fossil fuels. Flexible demand in locations of excess generation will reduce the investment needed in the grid. By consuming indigenous electricity in locations and times of higher renewable generation we can make better use of the existing grid capacity. This will reduce costs on all electricity consumers. In turn tariff reforms will help lower electricity costs for end users of electric heat and transport and so allow it to expand to its full potential.

The allowed revenues are currently set for ESBN through the PR5 mechanism are below.[1]

PR5 Allowed Revenues:

2022	2023	2024	2025
908.3	910.8	910.3	905.1

These annual revenues will ultimately determine the tariffs that ESBN apply as a standing charge. This revenue level can fluctuate depending on the ESBN submission each year but this is all underpinned by the regulatory structure set every five years under the current Price Review 5 (PR5) lasting until 2025. Further additional revenues can be available each year to support certain initiatives by ESBN such as through the 'Agile Investment Framework' and an 'Uncertainty Mechanism' to allow for further investment into the grid for reinforcement due to for instance expanding low carbon technology. There are also certain incentives on ESBN such as to invest in the visibility of the network through the 'Visibility Incentive' on the MV network.

Another example of an incentive on ESBN and Eirgrid is a joint in incentive on the TSO/DSO to outline key milestones and targets against areas such as Dispatch Down and Curtailment. The CRU acknowledges that "*the electrification of heat and transport and the changing role of the DSO will mean it could play an increased role in managing dispatch down*"[2]. This management of dispatch down will be greatly aided by the growth in electrification. A recent study has found "*that direct electrification of industrial process heat demands should be favoured*" and this is also "due to the lower costs of the energy system and a higher energy system efficiency with direct electrification."[3].

[1] Price Review Five (PR5) TSO and TAO Transmission Revenue for 2021 – 2025 CRU/20/152
[2] PR5 Regulatory Framework, Incentives and Reporting CRU/20/154
[3] Electrification of the industrial sector in 100% renewable energy scenarios, Aalborg University, May 2022

When PR5 concludes there will be a further 'PR6' mechanism used to determine revenues out to 2030. This is being developed by CRU and the approval of tariff changes is made by CRU under the Electricity Regulation Act 1999 s.35. Despite the revenues approaching almost €1 Billion each year there is no specific incentive mechanism to encourage renewable heat and transport.

Addressing the cost of electricity for technologies which use electricity to displace fossil fuels in heat and transport must be supported. Ireland Electrified is asking the CRU and ESBN to ensure:

1. Barriers to Active Consumers are removed. These are consumers who can increase consumption based on dispatch instructions from the System Operator
2. That electrification is encouraged rather than hindered by ensuring any new tariff reforms do not prevent the transition to electrification technologies by, for example, making the cost of electricity uncompetitive with fossil fuel alternatives.

International Practice

Ireland is pioneering the integration of variable renewable electricity. This is made even more challenging considering our island geography restricts AC interconnection. Other European countries are well advanced in terms of growing electrification, with Ireland currently the poorest in the EU for renewable heating and cooling, and the fourth poorest for renewable transport. Certain measures in other States have been put in place to progress low-carbon electric heating and transport to address the price ratio between electricity and fossil fuels. Electricity for transport is very cost-effective against fossil fuels, and this should become even more cost-effective to advance growth. Electric heat needs to be more economical against fossil fuels which has been seen in other EU states. Denmark has taken a policy of a reduction in taxes for electric heat.[4] Sweden with a well-expanded electric heat sector has a heat pump tariff.[5] Germany has recently introduced the "*Use instead of curtail*"[6] where dispatched-on consumption is excepted from network charges and the market price for would-be-curtailed renewable electricity is set under that of natural gas. These and other actions are helping the growth of electrification greatly right across the EU and it is continuing to increase.

There are no specific policy measures in the electricity costs in Ireland to encourage greater electrification. In Ireland the expansion in renewable electricity generation is not matched by

[4] Levelling the playing field: Aligning heating energy taxes and levies in Europe with climate goals, Regulatory Assistance Project, July 2022
[5] International Comparisons of Heating, Cooling and Heat Decarbonisation Policies, Report prepared for The Department for Business, Energy and Industrial Strategy (BEIS), Imperial College London, Final report November 2017
[6] https://www.netztransparenz.de/en/Ancillary-Services/System-operations/Use-instead-of-curtail

growth in electric heat and transport, this is despite the benefits electrification can offer, to fully utilise the existing grid and fully utilise the electricity currently being generated from renewable sources. Greater electrification in Ireland should be encouraged to take advantage more and more of the growing renewable generation.

A Dynamic Electrification Tariff

Under the CRU electricity tariff review consultation, it stated "The electrification of heat will also play a key role in decarbonisation through an increase in the uptake of heat pumps".[7] Providing incentives through the electricity tariff structure will help support the expansion of for example of industrial electric heat or large scale electric transport by using a specific lower tariff from ESBN for certain DG categories that have electrified. Longer term price stability is already provided to biomass and biomethane for renewable heat through the SSRH tariff for a 15-year period. A specific lower more dynamic tariff for those with electrification gives longer term certainty for industry in the transition from imported fossil fuels and it allows for the current revenues to be more dynamic to encourage renewable energy generally across the economy.

The tariff review being undertaken by the CRU seeks "To deliver network tariff structures that help facilitate a low carbon future that is secure, competitive and cost-effective".[8] The same CRU consultation further outlines that if the existing electricity network tariff structures are not fit-for-purpose "they could hinder the changes that are necessary for the electricity system in the coming years in order to deliver a secure and cost-effective low-carbon future."[9] More dynamic DUoS tariffs for electrification means many broad benefits including for the system operators, the economy and society.

Conclusion

More use of the electricity grid from homes, Irish industry and the transport sector means a better environment and better security of energy supply. Growth in electrification, aids in the broader electricity market, helping to address curtailment and constraints and further combining electrification technologies such with thermal storage and V2G means even greater flexibility for the system and a low-cost storage option. DUoS tariff reform can help grow electric heat and transport, but growing electrification must not be seen as simply adding to the demand, or a burden on the gird. The increased customer usage of the grid in fact should be advanced. Electrification will add broad value to the electricity grid, which will

[7] CRU's Electricity Network Tariff Structure Review, 2021 https://www.cru.ie/wp-content/uploads/2021/10/CRU21123-Electricity-Network-Tariff-Structure-Review-Objectives-Principles-Call-for-Evidence.pdf
[8] CRU's Electricity Network Tariff Structure Review, 2021
[9] Ibid

be hugely advantageous to the electricity market and demand management by the system operator. Incentivising and rewarding these advantages could be developed through reforms of our DUoS tariff to help lower electricity costs.

Action required:

The CRU and ESBN to create new electrification DUoS tariffs.

Such as:

1. A 'use not curtail tariff' which support demand-turn-up consumption. In this the annual average tariff would be unchanged but it would be allowed to be zero in times of curtailment and allow increase in times of generation scarcity.

2. A 'decarbonisation tariff' for consumers switching from fossil fuels to electric heat or transport. Designed to incentivise growth of decarbonisation technologies that substantially decrease emissions, and so aiding the state in avoiding future heavy fines and further increases security of supply by directly displacing imported fossil fuels.

This can initially apply for those industrial users where greater immediate advantages of flexibility can be harnessed. Those registered with having electric heat and transport will be provided with a lower electrification tariff and this could be supplied through a rebate. This can be developed via the new PR6 framework. A possible application may be made through the current PR5 arrangements under the Agile Investment Framework and the Innovation and R&D Mechanism.[10]

Tariffs and charges must be considered in the context of ESBN Flexible Demand Connections. Looking to address the restriction on only-firm connections being offered to consumers. Consumers who are satisfied with non-firm import connections should not be burdened with the excessive costs of grid upgrades to a firm connection which is not required.

[10] PR5 Regulatory Framework, Incentives and Reporting CRU/20/154