

A NEW APPROACH FOR A CHANGING WORLD

Regulating Ireland's
electricity networks

2021

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INTRODUCTION

PR5 comes at a time of transformation for the energy sector in Ireland and internationally. Over the next decade we expect to see:

- A significant increase in total electricity demand (40% growth between 2017 and 2025), driven by the electrification of heat and transport and growth in data centres, which could account for 30% of demand by 2028;
- Rising penetration of distributed generation and storage (distribution-connected renewables are forecast to increase by approximately 500 MW a year over the next decade, growing from about 2 GW in 2020 to 7 GW by 2030); and
- Expansion of smart grid technologies and a move towards a more active role for the distribution operator in managing the network.

Accommodating these changes requires substantial additional investment in network capacity. It will also require greater use of flexibility and smart solutions to manage demand in the short run and, where appropriate, allow for deferred capital investment in the longer term. But there is significant uncertainty over both the timing of increased demand from heat and transport and the ability to successfully deploy flexible solutions. The CRU's challenge in setting the price control, in common with regulators in other jurisdictions, is how to balance the need for investment with the risk that the rise in demand is delayed significantly and the associated impact on customers' bills.

The CRU's approach to managing this challenge has been to devise an 'agile investment framework'. This has the following elements.

- A distribution Uncertainty Mechanism which releases revenues in response to identified needs of the system, for example increased uptake of low-carbon technology and new connections.

EXEC SUMMARY

The Commission for Regulation of Utilities (CRU), the Irish energy regulator, recently [released](#) its price control decision (PR5) for ESB Networks and Eirgrid. The decision sets their allowed revenue for the next five years and allows for historically high investment of €4bn during the period. The CRU, like other regulators, has significantly reshaped the price control framework to deal with sectoral changes arising as part of the energy transition. However, unlike other regulators, it has chosen not to move to a totex regime, but rather to implement a flexibility mechanism as part of its 'agile investment framework'. In this note we assess the CRU's approach and identify the key implementation challenges it must meet to ensure efficient and flexible network investment.

- A distribution Flexibility Mechanism which allows the reallocation of capital expenditure to operational expenditure (and vice versa). This reallocation will facilitate the roll-out of new non-wire solutions which may replace or improve on traditional capital investments.
- An Innovation and R&D Mechanism which provides revenues needed for innovation projects not captured by other agile mechanisms.
- A Transmission Monitoring Committee which will ensure independent oversight of new initiatives.
- A Transmission Capex Adjustment Mechanism to allow for capex changes.

Additionally, the CRU has introduced an expanded incentives package and put a greater emphasis on output-based rather than input-based regulation. In our view, many of the elements of the framework look helpful and are in line with regulatory developments in other jurisdictions, notably the UK.

The element that represents one of the biggest changes in PR5 relates to the treatment of opex and capex. Like other regulators, the CRU has sought to incorporate greater flexibility in choosing between opex and capex as a core part of the approach to managing future demand and technology uncertainty. Below, we:

- Consider the need to change the traditional treatment of opex and capex;
- Outline the approach adopted in other jurisdictions; and
- Assess the CRU's approach.

A CHANGE IS NEEDED

When setting allowances for the price control period, the CRU and ESB Networks forecast costs and outputs based on expected cost drivers (such as projected new demand) and available technologies and services. The CRU aims to set separate opex and capex allowances based on the expected least-cost combination of inputs to produce the desired outputs.

There has always been a degree of uncertainty in these forecasts, but the quickening pace of technological change and questions around the timing of the energy transition have made the future even harder to predict. This means that as more information is revealed during the price control, the original allocations of opex and capex may not in fact represent the optimal investment mix. If the framework prevents the company from making adjustments during the price control, inefficient investment choices may result. For example, the company may be forced to make a large sunk capital investment, even though a cheaper opex option is available. Flexibility between opex and capex allowances can permit such changes or innovations to be adopted over time, thus benefiting consumers.

In other jurisdictions, this flexibility has been achieved via a totex regulatory model. For example, the UK, the Netherlands, Germany and Australia have all moved to a totex regime in the last 10-15 years.

A totex approach provides regulated companies with the freedom to deliver set outputs as they see fit, subject to living within an overall total expenditure allowance. A distinction is no longer made between operating expenditure and capital expenditure. Rather, the company is allocated an overall allowance.

Moving to a full totex regime is not without challenges. In particular, it is quite data intensive. This is because it is important that the regulator has good insight into the outputs it requires on behalf of customers and the likely level of costs needed to achieve those outputs. The CRU was therefore cautious

about implementing a totex model for PR5 due to data availability concerns and uncertainty over setting the baseline levels for the new package of outputs.

CRU'S APPROACH

Rather than set a single ('totex') allowance to provide flexibility, the CRU has opted to continue with separate opex and capex allowances alongside a newly proposed Flexibility Mechanism. This gives ESB Networks more room for manoeuvre by allowing for the bi-directional reallocation of allowances between opex and capex. It is open to any cost category.

As part of its annual regulatory reporting pack, ESB Networks will need to set out:

- how it has used the flexibility mechanism; and
- that its use has enabled ESB Networks to meet its output targets and provide value for money to customers.

At the end of the price control period, ESB Networks will continue to be subject to a detailed ex-post review by the CRU of its actual expenditure against its allowances. Under a totex model, this assessment would be carried out only at the total expenditure level. Under the PR5 model, it will be made at the opex and capex levels. Reallocations will therefore need to be justified at the ex-post review, whereupon the regulator will determine an "adjusted allowance" against which the actual costs will be compared.

Given questions about the uptake of low-carbon technology and, therefore, uncertainty as to overall and local demand, this flexibility allows ESB Networks to choose between investing in wires and alternative, innovative non-wire solutions such as demand-side management. This increases its ability to facilitate the adoption of low-carbon technology more efficiently and with least regret.

WHAT'S NEEDED TO MAKE IT WORK?

To have confidence that it can efficiently reallocate between opex and capex allowances, ESB Networks will need to know that the CRU will approve such transfers in its ex-post review. This concern is unique to a transitional model such as the one proposed for PR5, as ex-post justifications of reallocations are not required under a totex model.

The ex-post process requires ESB Networks to demonstrate that:

- the reallocated costs are material; and
- actual expenditure is expected to be net present value (NPV) neutral or positive when compared to the originally forecast expenditure.

In principle, this type of justification process makes sense, as it helps ensure only efficient allocations are allowed. The materiality threshold (set correctly) also makes sense, as there is no value in generating significant extra regulatory effort for relatively trivial reallocations. The additional data and transparency that will result from the annual reporting requirements should also help to facilitate better regulation. In application, however, it risks introducing an element of uncertainty as to whether reallocation decisions – made on the basis of the best information available at the time – will be accepted after the event.

We believe the CRU needs to take three key considerations into account in implementing this review.

1 ENSURE THAT THE MATERIALITY THRESHOLD IS NOT SET TOO HIGH

One of the CRU's justification criteria is that costs must be material, although it does not go into specifics.

The relevant materiality threshold will likely become clear over time as the CRU decides whether to allow or disallow reallocations. Until then, ESB Networks faces some risk that smaller-scale reallocations may not be approved: it is not clear from the framework whether the reallocation of costs that are below the materiality threshold can be made without formal clearance or are to be blocked.

In particular, many flexible solutions are only just emerging, and the market for flexibility will probably require substantial priming on the part of the operators. Consequently, it is likely that in the first instance many solutions will be implemented on a limited scale or in trials. It is therefore important that the materiality threshold is not set so high that it precludes or disincentivises ESB Networks from undertaking small-scale trials.

2 AVOID HINDSIGHT REGULATION

The second of the CRU's justification criteria is that actual expenditure is expected to be NPV neutral or positive. This introduces two key uncertainties:

- whether this criterion means "was expected to be NPV neutral or positive at the time the decision was made" or "is still expected to be NPV neutral or positive at the time of the ex-post review"; and
- whether the NPV criterion accounts for the option value of flexibility.

On the first point, ESB Networks will face uncertainty at the time it makes reallocation decisions related to new, innovative solutions. This means that there are likely to be some instances where, in retrospect, the wrong decision may be made.

For example, flexibility may be procured to defer network reinforcement on the basis of a particular demand forecast. However, if demand growth is higher than originally anticipated, the capex may be needed sooner than envisaged and hence the benefits of deferral may be lower than estimated.

If ESB Networks bears all of the risk of this 'trial and error' stage, it is likely to take a conservative approach to reallocation which will not be in the long-term best interests of customers. It will therefore be important that the CRU judges ESB Networks' decisions based on the information available at the time and not on information which became apparent only in retrospect. We note that the CRU has identified this risk and has made a commitment to not use 'hindsight regulation' in its ex-post review.

In relation to the option value of flexibility, the NPV assessment should take into account the potential it affords to put off reinforcement until further information is available, as this may be a source of significant benefits.

For example, assume: i) the level of future demand is very uncertain; and ii) that network reinforcement will be needed if demand turns out to be high but not if demand is low. If a decision to reinforce is made,

there is a chance it might prove unnecessary. To minimise this risk, ESB Networks may use flexibility solutions to buy time so it can make its decision when more information is available about future demand.

If high demand does materialise, the outcome may be that network reinforcement is needed and, with hindsight, should have been undertaken initially; using flexibility, therefore, was not the lowest NPV approach. However, at the time of the decision, factoring in option value was the right approach.

3 AVOID AN ANNUAL REOPENING OF INPUT DECISIONS

ESB Networks is required to provide annual reports on the use of the Flexibility Mechanism in PR5. This is helpful for ensuring the mechanism is being applied appropriately, but there is a risk that the CRU may take this information as the basis for an annual reopening or review of all reallocation decisions. The effect would be to require ESB Networks to justify its chosen inputs each year, in addition to needing to deliver on outputs. This would increase compliance costs and risk losing the benefits of moving to a more output-focused regime.

Therefore, in our view, even where a reallocation decision lasts for the remainder of PR5, it should be reviewed in the year it is taken and not revisited in each subsequent year.

IMPLEMENTATION AND FUTURE DEVELOPMENTS

The Flexibility Mechanism is a good first step to providing ESB Networks with the flexibility needed to optimise decisions during the price control period. However, the possible implementation risks highlighted above point to the tension that exists between:

- ensuring efficient spending by regulated companies (i.e. productive efficiencies); and
- potentially stifling the ability of the company to make the right decisions due to fears of regulatory disallowance (i.e. impeding dynamic efficiencies).

The CRU should be mindful of this tension. Ultimately, if the Flexibility Mechanism is implemented in a way that acknowledges the uncertainty ESB Networks will face when making decisions, encourages it to find innovative solutions and provides some certainty around revenue recovery, it should lead to positive changes in ESB Networks' decision making that will benefit consumers. If not, the CRU will have created a mechanism that is largely redundant or, worse, leads to increased compliance costs with no improved outcomes for consumers.

We note also that there may be a valuable role for flexibility in managing and optimising demand on the network in advance of required reinforcement works. In particular, when the network is approaching capacity and capital investment will take time, flexibility could be used to limit the risk of customer interruptions and customer minutes lost before the works are completed. It will be important to ensure that the CRU's approach facilitates this goal, and in doing so maximises the benefits that flexibility can bring.

As noted earlier, a number of regulators in other jurisdictions have moved to totex regimes over the last decade. However, other regulators – like the CRU in Ireland – may not be in a position to move to totex, yet still want to provide operators with increased flexibility. In such circumstances, an approach like the

Flexibility Mechanism may be a suitable alternative. Those regulators may, therefore, be keeping a close eye on the CRU's implementation and the resultant effectiveness of the Flexibility Mechanism in enabling efficient and flexible investment decisions.

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