



An Coimisiún
um Rialáil Fóntas
**Commission for
Regulation of Utilities**

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PR5: Electricity Networks Price Review Five 2021 – 2025

Discussion Paper on the Approach for Transmission & Distribution Price Review Five

PR5 Discussion Paper

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CRU Mission Statement

The Commission for Regulation of Utilities (CRU) is Ireland's independent energy and water regulator. The CRU was originally established as the Commission for Energy Regulation (CER) in 1999. The CRU's mission is to protect the public interest in Water, Energy and Energy Safety. The work of the CRU impacts every Irish home and business. The sectors we regulate underpin Irish economic competitiveness, investment and growth, while also contribute to our international obligations to address climate change.

The CRU is committed to playing its role to help deliver a secure, low carbon future at the least possible cost, while ensuring energy is supplied safely, empowered and protected customers pay reasonable prices and we deliver a sustainable, reliable and efficient future for energy and water.

The CRU is guided by four strategic priorities that sit alongside the core activities we undertake to deliver on the public interest. These are:

- Deliver sustainable low-carbon solutions with well-regulated markets and networks
- Ensure compliance and accountability through best regulatory practice
- Develop effective communications to support customers and the regulatory process
- Foster and maintain a high-performance culture and organisation to achieve our vision

Further information on the CRU's role and relevant legislation can be found on the CRU's website at www.cru.ie.

Executive Summary

The CRU is responsible for the economic regulation of the electricity network companies in Ireland. To do this, the CRU sets Price Reviews which limit the revenues that the relevant licensees can recover from electricity customers. Price Reviews are set every 5 years and the upcoming Price Review (“PR5”) will cover the period, 2021-2025. The CRU has set the following strategic objectives for PR5:

1. Facilitating a Secure Low Carbon Future
2. Transforming the Role of the DSO
3. Increasing Efficiency and Protecting Consumers
4. Resolving Local Security of Supply

Ambitious energy policy and challenging decarbonisation targets will drive transformational change in Ireland’s electricity networks over the PR5 and PR6 periods (2021-2030). Furthermore, in light of the advancement in technologies and greater access to smart services, the way we think about and use electricity is transforming. Against this backdrop, it is the CRU’s intention to set a regulatory framework that ensures that the electricity network companies have the resources, capability, flexibility and incentives to deliver this change. Given this level of transformational change, the CRU is considering changes to the regulatory framework.

The CRU is now providing interested parties with the opportunity to comment on the CRU’s overall approach for PR5. The CRU is particularly interested in stakeholders’ views on:

- the strategic objectives and the issues to consider in order to achieve these objectives (see section 2);
- potential changes to the regulatory framework and the principles a future regulatory framework should follow (see section 3);
- issues the CRU should consider to ensure that the regulatory framework delivers on the principles and questions set out in this paper (see section 3)
- consideration of performance targets for ESBN and EirGrid in light of transformational change (see section 3); and
- retaining certain PR4 methodologies (see section 4).

The purpose of publishing a Discussion Paper ahead of the main price review consultation is to enable the CRU to consider stakeholder views during the review of

the network companies' submissions and provide greater stakeholder input into the PR5 process. This is particularly important for PR5 given its importance in achieving Ireland's 2030 targets and the changes in the regulatory framework that will be needed to facilitate this.

The CRU will take responses to this Discussion Paper into consideration when preparing the consultation papers on the PR5 Determination, which are scheduled for publication in Q2 2020. However, the CRU will not respond separately to comments received at this stage and will use the comments received to inform its thinking in developing its proposals for consultation.

It should be noted that, since Q1 2019, extensive engagement with the network companies has taken place and the information-gathering process has commenced. A significant level of further engagement is expected in the coming months.

Public/Customer Impact Statement

Ireland's electricity networks deliver secure electricity supplies to homes and businesses in the country. The CRU allows ESB Networks and EirGrid ("the network companies") to charge money towards the cost of building, safely operating and maintaining the electricity system in Ireland. These charges are reflected in customers' electricity bills and make up the network companies' revenue allowances. The revenue allowances are collected from suppliers via the use of system charges and charges per unit of electricity that they buy, which is then passed on to customers in their electricity bills. Depending on other factors (for example the cost of wholesale electricity and fuel) the use of system charge typically accounts for about one third of an average residential customer's electricity bill.

The CRU's role is to protect electricity customers by ensuring that the network companies spend customers' money appropriately and efficiently to deliver necessary services and make necessary investments in infrastructure. The CRU does this through what is called a Price Review which is carried out every five years. The current Price Review (PR4) started in 2016 and will end in 2020. PR5 will follow PR4 and will determine the use of system charges for the period 2021 to 2025, and therefore, will have an impact on customers electricity bills over that period.

PR5 comes at an important time for the evolution of the electricity networks and will play an important role in enabling the transition to a low carbon system by 2030. We can expect significant changes over this period which will transform the way electricity customers think about and use electricity. Advancement in smart technologies such as smart meters will increase customer participation rates where electricity customers will become more active in energy markets. Given this level of transformation, we are consulting on some potential changes to the regulatory framework for PR5.

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Glossary of Terms

Abbreviation or Term	Definition or Meaning
CAPM	Capital Asset Pricing Model
CPI	Consumer Price Index
CAP	Climate Action Plan 2019
CEP	Clean Energy for all Europeans Package
DAC	Designated Activity Company
DAO	Distribution Assets Owner
DSO	Distribution System Operator
PR1	Price Review 1
PR2	Price Review 2
PR3	Price Review 3
PR4	Price Review 4
PR5	Price Review 5
RAB	Regulatory Asset Base
TAO	Transmission Asset Owner
the Act	Electricity Regulation 1999 Act, as amended
TSO	Transmission System Operator
WACC	Weighted average cost of capital

1. Introduction

This chapter summarises the relevant context and legal background for Price Review 5 (PR5). It explains the CRU's role in setting the allowances for, and the roles of EirGrid, ESB Networks and ESB.

1.1 Background

The CRU is responsible for the economic regulation of the system operators and asset owners for electricity transmission and distribution systems in Ireland. To do this, the CRU carries out reviews of the allowed revenue for the transmission and distribution businesses through price reviews. Price reviews sets the revenue that the relevant network company can recover from electricity consumers and are set every 5 years.

The transmission business consists of EirGrid, licensed by the CRU as the Transmission System Operator (TSO) and ESB, acting through its ESB Networks business unit, is the licensed Transmission Asset Owner (TAO). ESB Networks DAC is licensed by CRU as Distribution System Operator (DSO)¹, and ESB, acting through its ESB Networks business unit, is the licensed Distribution Assets Owner (DAO).

In December 2015, the CRU set its price reviews for the Price Review 4 (PR4) period for EirGrid as TSO, and for ESB Networks as TAO and DSO/DAO, PR4 comes to an end in 2020. Therefore, this year (2019), the CRU has commenced the review of the allowed revenue for the transmission and distribution businesses for the next price review period (PR5). PR5 will cover the five-year period from 2021 to 2025.

The CRU's five-year Price Review decisions outline the revenue that the network businesses are allowed recover from customers during a Price Review period.

1.2 Legal Context

Under Section 36 of the Electricity Regulation 1999 Act, as amended ("the Act"), the CRU approves charges for the use of, and connection to the electricity system. In accordance with Section 35 (4) these charges are to be calculated to enable the network companies recover:

¹ In this paper references to DSO revenue refer to revenue requirements for both the DSO and DAO function

- the appropriate proportion of the costs directly or indirectly incurred in carrying out any necessary works; and
- a reasonable rate of return on the capital represented by such costs.

1.3 Purpose

The purpose of this Discussion Paper is to inform and seek comments from consumers and relevant stakeholders on the approach proposed for the forthcoming PR5 revenue review. The purpose of PR5 is to determine an appropriate level of allowed revenue for the network companies for the 2021-2025 period. The PR5 regulatory framework will be developed to facilitate flexibility which would allow the network companies respond flexibly to the changing needs of the system. Therefore, the PR5 regulatory framework will be different to the framework that was in place for PR4.

1.4 Structure of this document

This information paper is structured as follows:

Section 2 outlines the PR5 project scope, principles and objectives. This section also outlines relevant energy policy in Ireland and briefly examines the current trends in energy sector.

Section 3 sets out the CRU's intention to develop a regulatory framework that facilitates the delivery of transformational change. This section also outlines CRU's request to the network companies to develop regulatory framework proposals and the principles the proposals should follow.

Section 4 outlines the CRU's intention to retain the Valuation & Depreciation Methodology, the Capital Asset Pricing Model, and the Multi-annual revenue review methodology for the PR5 Period.

Section 5 outlines, in addition to the CRU privacy statement, the Discussion Paper questions and how stakeholders should respond..

Section 6 outlines next steps.

2. PR5 Scope, Objectives & Principles

This section outlines the PR5 project scope, principles and objectives, and the current trends in energy sector.

2.1 Scope

The CRU will review and set the following items for the transmission and distribution businesses as part of the scope of PR5:

- Operating expenditure, both historic and proposed;
- Capital expenditure, both historic and proposed;
- Weighted average cost of capital (WACC);
- Regulatory asset bases (RABs); and
- Reporting and performance incentives.

The CRU will also review the regulatory framework with the view to providing the network companies with greater flexibility in their investment decisions. A flexible investment framework may be necessary to deliver on the Government's Climate Action Plan 2019 (CAP)² and the European Clean Energy Package (CEP)³. Furthermore, flexibility can deliver further benefits for electricity customers while decarbonising the electricity system.

2.2 Project Principles

The CRU considers that PR5 should be set using a common set of principles, which drive the network companies to improve efficiencies and deliver outcomes for consumers. Moreover, PR5 will be carried out in an open and transparent manner which will facilitate accountability and promote integrity. To this end, the CRU has set out a number of project principles. These are:

- the delivery of efficient and sustainable investments for consumers;
- the system is effectively operated and maintained to a high standard;
- an increased focus on outputs, outcomes and delivery of services for consumers;

² [Climate Action Plan 2019](#)

³ [Clean Energy Package](#)

- revenue allowances that reflect improvements in outcomes, performance and increased efficiencies, and provide competitive prices;
- the network companies can carry out their functions and earn a reasonable return on their investment;
- the framework supports climate targets and facilitates Ireland’s transition to a low carbon economy, and is consistent with the legislative obligations of the CRU; and
- ensure there is a level of engagement in decision making that will allow interested stakeholders’ voices to be heard, which will allow the CRU to consider opposing views to facilitate well balanced and evidenced based decisions.

2.3 Project Objectives, Policy and Transformation

The combined impact of the Government’s Climate Action Plan 2019 (‘the CAP’), and the European Clean Energy Package (‘the CEP’), is expected to drive significant change in the energy sector and will transform the way we think about, use and generate electricity. Moreover, with the roll-out of smart metering, the changing operation of the system, and the local security of supply issues will further drive changes in the electricity sector. Therefore, the PR5 Project comes at an important time for the evolution of the electricity networks.

2.3.1 The Policies Driving the Transformation

Published in 2019, the CAP has set ambitious targets for renewable electricity, electric vehicle uptake and heat pumps installed:

- 70% renewable electricity by 2030;
- 950,000 electric vehicles on the road by 2030; and
- 600,000 heat pumps installed by 2030.

Also published in 2019, the CEP introduced new rights for consumers that aim to put the consumer at the centre of the energy transition by making it easier for consumers to produce, store and sell their own energy effectively allowing them to participate in energy markets⁴.

⁴ https://ec.europa.eu/ireland/news/clean-energy-for-all-europeans-package-completed_en

2.3.2 The Transformation

As stated previously, the major changes that can be anticipated over the PR5 and PR6 periods include an increase in renewable generation, an increase in the use of electricity for heat and transport, an increase in distributed generation, an increase in participation rates from more active consumers (micro-generation, demand response etc.) and the participation of Citizen Energy Communities. An implication of these changes is that the role of both the DSO and TSO will become increasingly central to delivering the transformation. The DSO will play an increasingly active role where its principal task will be to facilitate the energy sector in a neutral manner⁵, and therefore the independence of the DSO role should be strengthened. This could include the independent control of shared IT, HR, procurement, legal and the other measures set out in SEM Committee Preliminary Decision of 12th February 2013⁶ and set out in EU Commission Decision of 12th April 2013⁷.

Greater flexibility on the network will be required to securely accommodate more renewable generation. New technologies and new demands on the system will require investments in the network but also innovative approaches to minimise capital expenditure and facilitate market solutions. In the absence of innovation, a business-as-usual approach to address the new demands placed on the electricity network could result in significant additional costs for consumers. Therefore, the CRU has chosen its four strategic objectives for this Price Review in order to deliver a secure and sustainable system in a cost-effective manner that prepares the system for further development after the PR5 period. These strategic objectives will seek to ensure that:

1. the PR5 period fosters an environment that facilitates Ireland's transition to a low carbon energy future as Ireland aims to meet its 2030 renewable energy targets;
2. the role of the DSO is transformed, and industry has confidence in the DSO's capacity to deliver independence and guaranteeing this independence into the future;
3. there is a systematic focus on increasing efficiency in the operation of the network companies while continuing to meet the needs of the network and protecting the long and short-term customer interest; and

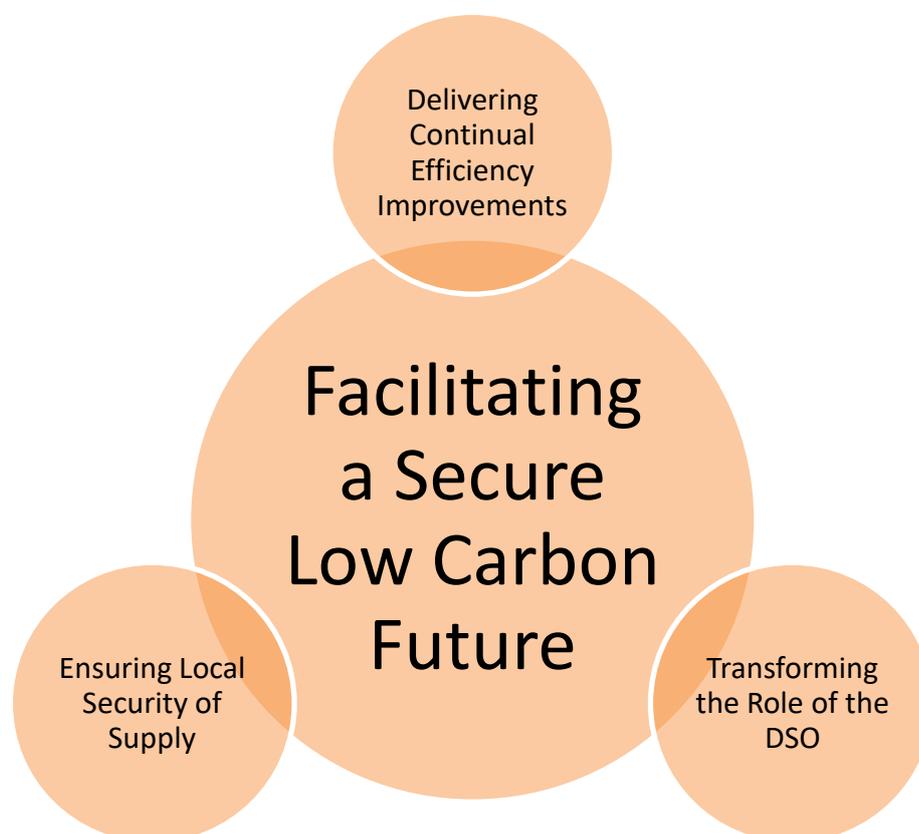
⁵ [New Services and DSO Involvement – CEER Conclusions Paper](#)

⁶ [SEM Committee Preliminary Decision](#) of 12th February 2013 TSO Certification under Article 10 of Directive 2009/72/EC

⁷ EU Commission Decision of 12th April 2013 – [C\(2013\) 2169](#)

4. the network companies are given sufficient incentives to solve the Dublin Security of Supply issues before 2025.

2.3.3 PR5 Objectives



1) Facilitating a Secure Low Carbon Future

Facilitating a secure low carbon future is the central strategic objective of this Price Review. Ireland's need to meet carbon emission reduction targets by 2030 while maintaining security of supply and affordable electricity prices, requires substantial changes to Ireland's electricity networks and the way we consume electricity. To this end, the PR5 Determination will aim to:

- empower energy customers with better and more accurate information regarding their consumption, provide greater flexibility and facilitate active consumers; and
- allow the network companies to efficiently manage and develop the networks in order to increase the penetration of renewables.

Innovative solutions and approaches will be required to do this; including facilitating

greater use of third parties and market-based solutions.

During PR4 and PR3 there was substantial investment in the following innovation projects with significant outcomes and learnings:

- the DS3 Programme;
- the ‘Power-Off and Save’ trial;
- the Electric Vehicle Infrastructure Pilot Project;
- the Smart Meter Programme; and
- the DSO’s Strategic Innovation Fund.

During the PR5 period the network companies will build upon these learnings and the CRU intends to put in place a framework that will ensure value-for-money for the consumer while facilitating innovation projects. Specifically, quickly embedding the innovation learnings in the network companies’ business as usual operations and activities.

2) Transforming the Role of the DSO

Delivering on the objective of a secure low carbon future will require innovation from both network companies and a changing role, particularly for the DSO. The DSO will play a pivotal role in Ireland’s transition to a secure low carbon future. The electrification of heat and transport, smart meters, community schemes, the growth of demand response, and distributed generation will drive fundamental change for the distribution network. It will be important that the DSO transforms its business to ensure that it can support and facilitate this change for the benefit of customers. Significant consumer and market benefits can be unlocked if the DSO works with third parties. For example, collaborating on R&D projects, going to the market to deliver non-wires alternatives to capex investment or facilitate a market for services and ensure IT systems are flexible, adaptable, fit-for-purpose and interoperable to the extent and level needed. Successfully transforming the role of the DSO will deliver significant long-term benefits for customers and market participants in addition to facilitating the transition to a low carbon system.

Over the PR5 period, the DSO must build up the internal capacity to deliver this transformation and have the capacity to respond and adapt in an agile and flexible manner to the changes in the market. The success of the DSO’s role as a neutral market facilitator will depend on market participants’, including potential new market participants’, confidence in the DSO’s capacity to deliver in this role by ensuring its independence and guaranteeing this independence into the future and thereby encouraging market entry and long-term investment in new markets and services. This may mean a strengthening of the separation between ESB Networks and ESB Group. This also means adapting the regulatory framework, not only for the DSO but also the TSO, to allow the system operators the flexibility and agility to respond to uncertainty

and the changing needs of the system.

3) Increasing Efficiency and Protecting Consumers

As set out within the CRU's Reporting and Incentives Decision Paper (CRU/18/087), network companies must focus on delivering better outcomes for customers. Innovation can be used to maximise the use of the existing assets and to deliver services more efficiently. This may mean maximising the use of existing assets and consequently reducing the need for additional capital investment. The scale of the challenge in achieving the 2030 targets, and the likely upward pressure on costs associated with them, means that incremental improvements to business-as-usual processes will not be sufficient to ensure an economically sustainable transition to a secure low carbon future. There must be a step-change in performance and therefore in international comparisons it is not appropriate to consider EirGrid and ESBN relative to *average* international performance. Rather, comparisons must be made relative to the best performing network companies internationally.

The CRU expects the network companies to ensure that there is an ambitious and systematic focus on increasing efficiency in terms of cost and quality of delivery while continuing to meet the needs of the network and protecting long and short-term customer interests. Addressing the challenges associated with the transformational change on the system will require investment and changes to the network companies' current processes.

To deliver on this objective the CRU will require the network companies to review their current processes and take into consideration best practice internationally and the deliverables necessary to achieve the 2030 targets. In addition, the network companies should embed continual efficiency improvements into their approach to all of their areas of responsibility. To support this, the CRU will examine ways to enable greater flexibility for the network companies within the PR5 framework to facilitate innovation.

The CRU required the network companies to set out in their PR5 submissions what efficiencies have been implemented in PR4 and what efficiencies are planned for PR5. Where efficiencies were not successfully implemented in a given area the companies should outline what measures were explored and the lessons learned from the process. The CRU also intends to consider international best-in-class performance when setting performance, output and incentive targets for the network companies. Given the ambition of the 2030 targets the CRU considers that a step-change in the network companies' delivery capability is necessary.

The CRU will explore other options to drive efficiencies and protect consumers, such as examining the financial structures of the companies and market conditions when setting the cost of capital. In particular, as noted in CRU's decisions regarding the Gas

Price Control 4(PC4)⁸ and Water Revenue Control 3 (RC3)⁹, we will review the current low interest rate environment and consider how market data should be reflected in the allowed cost of capital.

4) Local Security of Supply

Over the last number of years there has been significant growth in forecasted demand, particularly in the greater Dublin region. A driver of this demand is the connection of large data centres, which tend to have significant demand loads and short construction lead times. Local security of supply issues can arise not only due to increases in demand in an area but also due to reductions in generation capacity in the relevant area.

Given the national importance of maintaining a secure electricity supply to the Greater Dublin Area the CRU considers that local network constraints must be resolved as a matter of urgency. In addition, the removal of constraints will have wider consumer benefits in terms of the efficiency of the wholesale market and reduced costs for consumers.

In light of the significant growth in forecasted demand, the CRU proposes to provide the network companies with sufficient incentives to solve the local Security of Supply issues as they arise, in particular in areas of significant constraints such as Dublin.

The CRU will set an incentivised target for the network companies to solve the security of supply issue by 2025. Achieving this target will mean that operational constraints in the greater Dublin region will be removed entirely and all customers seeking a connection in the Dublin region will receive a connection in a timely manner, which may however involve participation from demand customers to facilitate their connections. Furthermore, solving this issue will improve the efficiency of the wholesale market. The CRU will also consider setting targets for improving local security of supply issues in other parts of the system, and in particular resolving network constraints.

⁸ PC4 - <https://www.cru.ie/wp-content/uploads/2017/06/CER17260-PC4-CER-Transmission-Decision-Paper.pdf>

⁹ RC3 - <https://mk0cruiefjep6wj7niq.kinstacdn.com/wp-content/uploads/2019/07/CRU19148-Irish-Water-Revenue-Control-3-Decision-Paper.pdf>

3. The Regulatory Framework

This section sets out the CRU's intention to develop a regulatory framework that facilitates the delivery of transformational change. The CRU has requested and received regulatory framework proposals from the network companies and is actively considering changes that can be made to the existing framework. This section also sets out a number of principles the network companies' proposals should follow. These principles have been communicated to the network companies.

3.1 Vision for Ireland's Low Carbon Future

As already mentioned, the Climate Action Plan 2019 sets challenging targets to decarbonise electricity network while facilitating significant electrification of heat and transport and accommodation 70% renewable electricity. This will require a step-change in how the TSO and DSO deliver infrastructure and operate the system.

The PR5 Determination will provide a framework that ensures that ESB Networks and EirGrid have the resources, capability, flexibility and incentives to deliver this change. While also being required to demonstrate consumer value and delivery against ambitious performance targets that focus on transformational, not incremental, change.

The CRU has informed the network companies that the CRU is open to considering proposals from the companies that would, for example, enable changes in required outputs and allowances within the PR5 period, further evolve the reporting and incentives regime and introduce flexibility between expenditure categories (i.e. opex and capex). The PR5 period will also represent an opportunity to gather and report on the data that would enable the CRU to consider introducing additional flexibility or a totex regime in the future, should this be considered appropriate and in the public interest.

The CRU has written to the network companies requesting a detailed proposal for the PR5 regulatory framework. In order to assist the network companies in the preparation of their submissions, the CRU set out a number of guiding principles (see section 3.3 below) that will be used to evaluate the proposals.

3.2 Regulatory Framework – Guiding Principles for Proposals

The regulatory challenges we are facing are not unique to Ireland's electricity system, and different regulators have taken different approaches to address them. The CRU is

considering how the current regulatory framework can be developed to enable the network companies to deliver the long-term network and operating change needed. As part of these considerations, we will consider proposals from the network companies which demonstrate real value for customers, and which are clear on how they meet the following guiding principles:

- **The network companies remain solely responsible for its expenditure decisions**

The network companies are best placed to decide on how to embed innovation within investment decision-making and deliver on the strategic objectives within a changing operating environment. The regulatory framework must not, deliberately or unintentionally, transfer responsibility for the network companies' decisions to the CRU (or to any other party). Where cost allowances are updated during the regulatory period, for example; through an uncertainty mechanism – the onus will remain on the network to demonstrate that the right outcomes were delivered efficiently as part of the *ex post* review.

- **Ease of Implementation**

PR5 occurs at a time in which the electricity system is transitioning, and likewise the regulatory framework in PR5 would represent a point in the evolution of regulation ahead of potentially more substantial changes in PR6. It is essential that any changes to the framework can be credibly implemented in the time available. This means that:

- mechanisms must be proportionate to the scale of the Irish system and moderate the need for regulatory intervention which may introduce uncertainty into the framework;
- outputs or outcomes required to achieve the agreed strategic objectives and incentives must be based on clear and accepted definitions, and established data that can be readily verified; and
- the framework must minimise the requirement for regulatory intervention where changes to planned investments are considered.

- **Clarity on what outcomes are to be achieved**

As noted above, the CRU wishes to place a greater focus on outcomes for customers. The selection of the most appropriate outcomes will be key to this. Therefore, any changes that would focus the framework more on the outcomes being delivered by the network companies must not expose consumers to additional risk of poorly or mis-specified outputs. The CRU is interested in evidence that the network companies are behaving flexibly to deliver what consumers

require amid the changing environment, so appropriate monitoring functions and processes must be integral to the framework.

- **Appropriate risk and reward**

The CRU is open to considering changes that would allow the network companies retain a different share of the benefits or savings delivered than under the current regulatory framework. Any such framework must be:

- capable of demonstrating the added value for customers,
- balanced so that the network companies would similarly bear a share of the dis-benefits or costs that result from their actions (or inaction); and
- proportionate to the quality of information available to set baselines, and to the novelty of the mechanisms (i.e. newer incentives that have a less established basis in the regulation of Irish electricity networks should have a narrower range of potential upside and downside).

- **Consistency between the frameworks for the DSO and TSO**

The CRU recognises the differences between transmission and distribution companies and there may be a need to apply somewhat different regulatory approaches to the DSO and TSO. The regulatory frameworks should consider how interaction between both the DSO and TSO can be facilitated to deliver the CRU's PR5 objectives. It is noted that solutions delivered on the distribution system may have transmission benefits and vice versa.

- **Appropriate level of oversight**

Monitoring and reporting gives visibility to what each company is delivering and improves accountability. The regulatory framework must consider a practical level of monitoring and reporting requirements during the period. The reporting regime should be dynamic and allow the CRU to flexibly respond quickly where necessary. Such a regime will ensure that relevant information is easy to access and interpret and can adapt over time to ensure reporting on the full ways in which actions by the network companies impact stakeholders.

- **Facilitate target setting against 'best in class' KPIs**

The scale of the challenge of achieving the 2030 targets, and likely upward pressure on costs associated with them, means incremental improvements to business-as-usual processes will not be sufficient to ensure an economically sustainable transition to a secure a low carbon future. The framework must ensure

that there is an ambitious and systematic focus on increasing efficiency in terms of cost and quality of service delivery by demonstrating how companies compare to 'best in class' comparators. Comparisons against average performance internationally will not be sufficient to deliver the necessary transformation of the Irish electricity system.

3.3 Questions for a Future Regulatory Framework

While taking into consideration the above principles, we requested that the network companies' submissions on their regulatory framework proposals also answer the following questions, which are set out below.

- How would the proposed framework reduce the need for regulatory intervention during the price review period?
- Are there aspects of the proposed regulatory framework which need to change to improve the DSO's capacity to deliver independence and guarantee this independence into the future? This could include the independent control of shared IT, HR, procurement, legal.
- How, in practice, would the proposed regulatory framework facilitate a 'least regrets approach' to the delivery of a sustainable, low-carbon electricity system?
- How would the definition of strategic outcomes and cost allowances be framed at the time of the price control review (i.e. when setting *ex ante* targets and allowances)?
- To what extent should cost and performance 'baselines' be set for specific activities or be aggregated? At this stage, we do not think there is sufficient evidence to set a total expenditure ('totex') allowance for PR5 without significant risk. There is, however, scope for additional flexibility in the allowances. Any future decision on moving to a totex model by the CRU will consider the public interest of moving to a new model.
- How would allowances need to flex during PR5 in response to new information (e.g. through use of uncertainty mechanisms)?
- What reporting, monitoring and evaluation arrangements need to be introduced or strengthened to provide the CRU with the necessary assurances that the network companies are acting in consumers' interest? Should such monitoring and evaluation be conducted by the CRU itself, stakeholder representatives, or an independent third party?

- How would the incentives and reporting requirements under PR4¹⁰ need to change to facilitate the proposed revised regulatory framework?
- How would the *ex post* review need to adapt in light of the proposed changes to the framework?

Question 4

The CRU seeks stakeholders' comments on the PR5 regulatory framework, the principles and the future regulatory framework questions set out above?

Question 5

Do you have any views on what issues the CRU should consider to ensure the regulatory framework delivers on the principles and questions set out in this section? Also, do you have views on what the CRU should consider when reviewing responses to our future regulatory framework questions?

¹⁰ <https://www.cru.ie/wp-content/uploads/2018/05/CRU18087-Reporting-and-Incentives-under-Price-Review-4-Decision-Paper.pdf>

4. Retaining PR4 Methodologies for PR5

The CRU, as with previous reviews, will carry out a detailed examination of the costs and expenditures of the regulated companies for the period 2016 – 2020. The CRU will, as in PR2, PR3 and PR4, continue to set revenues ex-ante and carry out an ex-post review of costs. However, while the ex-post review will remain in some form, as noted above, the CRU may consider changes to the ex-post review to facilitate greater flexibility for the network companies. The CRU will protect consumers when setting ex-ante revenues by considering the needs of the system and the consumer interest. The CRU also intends to ensure that the final outturn of PR4 is appropriate and efficiently incurred. Therefore, where relevant, this may result in additional efficiencies being sought during the PR5 period.

On the basis of regulatory certainty and maintaining regulatory precedent, there are certain methodologies which were used for PR1 to PR4 which the CRU considers appropriate to retain for PR5, these include:

- A multi-annual revenue review covering a 5-year period;
- The Capital Asset Pricing Model (CAPM) to aid the determination of the WACC; and
- Application of the existing methodologies used for valuation and depreciation of the transmission and distribution businesses assets.

The remainder of Section 4 provides detail on each of the methodologies listed above and explains why the CRU considers that they should be retained for PR5.

Notwithstanding the above, in order to allow the system operators the flexibility and agility to respond to uncertainty and the changing needs of the system, the CRU will consider adapting the regulatory framework.

4.1 Multi-annual revenue review and five-year review period

In October 1999¹¹, the CRU consulted on the general principles that would be applied to transmission and distribution revenue controls going forward. One of the areas

¹¹ Draft principles for the regulation of Distribution and Transmission Revenues CER 99/04 – 13 October 1999.

consulted upon was the length of the revenue control period. CER 99/04 stated:

“that the longer the control period, the greater the short-term incentives for efficiency gains, but the greater the potential for forecasting errors to result in excess profits. If excess profits are unacceptable, there may be pressure to re-open the price control formula, which tends to undermine long-term incentives for efficiency”.

Therefore, the length of the review period needed to be considered in the context of the overall regulatory package, including the price control formula and the review process. In principle, the length of the period should depend on the extent to which costs are predictable, and at the same time an incentive can be provided to the regulated business to reduce its costs and become more efficient. It is these lower costs that can ultimately be passed on to the final customer.

The CRU decided, post publication of CER 99/04, that a review period of five years, on a calendar year basis, would be employed in transmission and distribution. The CRU was minded at the time to choose this length, on the grounds that a length of five years balanced the incentives to short term efficiency with the risks of unacceptably high profits being made, as a result of underestimation at the outset of the potential for efficiency gains, the CRU still considers this to be the case.

4.2 Capital Asset Pricing Model (CAPM)

It was decided in the transmission and distribution PR2 decision papers that, in common with regulators in comparable environments to Ireland, the CRU would use the CAPM to assist in determining the appropriate cost of equity for the utility companies. This cost of equity forms an input in determining the WACC for the transmission and distribution businesses. The CRU at that time considered a range of different options for calculating the cost of equity, such as the Multifactor model and the Dividend Growth Model or Dividend Discount Model approaches.

The CAPM states that the cost of equity should give shareholders a risk premium above the risk-free return according to a business's systematic risk, which depends upon whether the return to that business is more or less risky than the market return. This is measured by the beta coefficient, which does not measure specific risk

(assumed to be eliminated by portfolio diversification). As noted in CER/05/143¹² and CER 05/138¹³ CAPM is a forward-looking model, that is, it is intended to model future rather than historic returns.

The model specification of the CAPM for the cost of equity (Re) is as follows:

$$Re = \text{Risk free rate} + \text{beta} * \text{equity risk premium}$$

Consistent with the approaches taken by regulators internationally, the CRU considered in PR1 to PR4 that, while other methodologies had their own specific advantages and disadvantages, none provided a compelling case for its use in place of CAPM. Therefore, the CRU used the more generally accepted financial model, CAPM, to provide one of the inputs in determining equity costs. The CRU considers that a consistent approach with the previous price controls should be maintained and proposes the continued use of the CAPM methodology for PR5.

4.3 Valuation & Depreciation Methodology

The approach to valuing the RABs of the regulated companies is a crucial decision within the price control process. The RAB plays a key role in establishing the value of each business and hence its ability to cover capital expenditure and provide an adequate return on capital employed. Specifically, the RAB should be such that it can provide sufficient revenue when applying the cost of capital to it, to ensure that the business is able to fund appropriate new investments.

The CRU has previously taken the following approach in PR2, PR3, and PR4 in determining the TAO's and DSO's RAB:

- Determine the Transmission and Distribution RAB based on Replacement Costs; and
- Apply a 50-year life to transmission network assets and 45 years to distribution network assets.

These points are discussed below.

Using some form of replacement value for the RAB has a strong economic foundation. An accurate valuation results in tariffs that provide an accurate price signal of the cost

¹² [2006-2010 Transmission Price Control Review](#)

¹³ [CER Decision Paper on Distribution System Operator Revenues](#)

of using the transmission and distribution networks. An overvalued RAB would provide the SOs with excessive revenue and potentially encourage inefficient investment decisions and increase the risk that investments made now would be stranded in the future. If tariffs were based on asset values that were too small, the value of the networks would be understated with an insufficient return provided to ensure adequate funds for replacement. Thus, taking a replacement cost approach is more likely to result in the correct level of network investment.

Another approach to valuing the RAB is Historic Cost. In this method the assets of the system are valued at their original purchase price. The value is typically depreciated to reflect “wear and tear” and obsolescence, and indexed for inflation. One advantage of this approach is that the depreciation level can be easily audited because the data should be available from the published accounts of the regulated business, and it relies on actual data rather than judgement. However, this approach may overstate the value of the assets in times of technical progress. Therefore, the CRU decided in PR1 to PR4 that depreciation would be calculated on a straight-line basis to write-off the depreciable amount of the assets over their expected useful life. The CRU decided in PR2 that the useful economic life of the transmission network RAB would be revised from 40 years, as was used in PR1, to 50 years and from 40 years to 45 years for the distribution network RAB. While the CRU considers that these average asset lives remain a reasonable representation of the working life of network assets, we will consider asset lives as part of PR5.

In PR2 to PR3 the RAB for the regulated companies was updated on an annual basis to reflect additions and depreciations over the course of the year (nominally calculated at the mid-point of the year). However, as noted in the PR4 decision, the CRU was concerned that in a number of instances assets were constructed by the asset owners and added to the RAB, but full commissioning and energisation of the assets was delayed, in some cases by a number of years. Consequently, in PR4 the CRU decided that assets which have been added to the RAB, but have not been energised within five years (except in the case where the programme of work was scheduled to be longer than five years or where the asset owner can satisfactorily show that the delay is beyond its control) would be temporarily removed or “paused” from the RAB (with all return and depreciation paused) until the point at which the asset can be energised and utilised (The CRU is minded to continue to apply this rule to additions to the RAB for PR5).

Furthermore, in PR3 CRU created a “side-RAB” for EirGrid as TSO. This was designed to reflect capital expenditure by EirGrid in planning and developing transmission capital assets (Stage 1) up to the point of regulatory approval and transfer of the assets to ESBN as TAO, or regulatory rejection at which stage EirGrid is recompensed for any efficiently expended resources. The side RAB allows EirGrid to recover the carrying cost of the expenditure (using a real WACC) until it is

transferred to the TAO or is not proceeded with. Like PR3 and PR4 the CRU will conduct an annual ex-post report and review of the efficiency of EirGrid's Stage 1 spending. In reviewing the performance of the regulated companies CRU will consider the point at which those monies should be repaid by the regulated companies.

Depreciation of the transmission and distribution RABs reflects the cost of using the assets during the period. As was stated in CER 05/143¹⁴ and CER 05/138¹⁵, the depreciation method should reflect, as fairly as possible, the pattern in which an asset's economic benefits are consumed.

Question 6

The CRU seeks stakeholders' views on retaining PR4 methodologies, set out in this section, for PR5.

¹⁴ [2006-2010 Transmission Price Control Review](#)

¹⁵ [CER Decision Paper on Distribution System Operator Revenues](#)

5. Discussion Questions and Responses to this Paper

5.1 Discussion questions

1. The CRU seeks stakeholders' views on the CRU's approach to PR5 and in particular stakeholders' views on issues the CRU should consider in order to achieve the objectives set out in this section.
2. What performance targets should the CRU consider for EirGrid and ESBN?
3. What outputs and outcomes should the CRU consider in relation to EirGrid and ESBN?
4. The CRU seeks stakeholders' comments on the PR5 regulatory framework, the principles it should follow and the future regulatory framework questions.
5. Do you have any views on what issues the CRU should consider to ensure the regulatory framework delivers on the principles and questions set out in this section? Also, do you have views on what the CRU should consider when reviewing responses to our future regulatory framework questions?
6. The CRU seeks stakeholders' views on retaining PR4 methodologies for PR5.

5.2 Responses to this paper

Responses to this paper from all interested parties are invited, preferably by email, to dlindsay@cru.ie by 30 January 2020.

Unless marked confidential, all responses from companies or organisations may be fully published on the CRU's website. Respondents may request that their response is kept confidential.

The CRU shall respect this request, subject to any obligations to disclose information. Respondents who wish to have their responses remain confidential should clearly mark the document to that effect and include the reasons for confidentiality.

Responses from identifiable members of the public will be anonymised prior to publication on the CRU website unless the respondent explicitly requests their personal details to be published.

The CRU privacy notice sets out how we protect the privacy rights of individuals and

can be found [here](#).

6. Next Steps

The PR5 project is expected to follow the following timelines:

- The CRU will review the network companies' business plan submissions.
- The CRU intends to publish its consultation papers in Q2 2020.
- The CRU intends to publish final PR5 decisions in Q3 2020.
- The regulated companies will implement the PR5 decisions which set out revenues for 2021-2025.

The CRU will take responses to this discussion paper into consideration when preparing the consultation papers on the PR5 Determination. In February 2020, after the close of the consultation period, the CRU will facilitate bilateral meetings to allow stakeholders to discuss their responses to this discussion paper with the CRU. If you wish to have a bilateral meeting on PR5 please indicate this in your response to this discussion paper.