# REPORT ON CONSULTATION ON DRAFT TRANSMISSION DEVELOPMENT PLAN 2018-2027

EIRGRID

## Contents

# 1 Abbreviations

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| ATR | Associated Transmission Reinforcement |
| CRU | Commission for Regulation of Utilities |
| DSO | Distribution System Operator |
| ESB | Electricity Supply Board |
| FAQ | Firm Access Quantity |
| SONI | System Operator Northern Ireland |
| TDP | Transmission Development Plan |
| TSO | Transmission System Operator |
| TSSPS | Transmission System Security and Planning Standards |

## 2 Glossary

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|---|---|
| Associated Transmission Reinforcement （ATR） | ATRs are the transmission reinforcements that must be completed in order for a generator to be allocated Firm Access Quantity （FAQ）. ATRs include reinforcements such as line and busbar uprating's, new stations and new lines. |
| Firm Access Quantity （FAQ） | The level of firm financial access available in the transmission network for a generator is that generator's FAQ. Firm financial access means that if the power produced by a generator is constrained up or down, it is eligible for compensation in the manner set out in the Trading and Settlement code. |

# 3 Introduction

As the Transmission System Operator (TSO) for Ireland, we are responsible for the development of the Irish transmission network. We are obliged to develop a safe, secure, reliable, economical, and efficient transmission network to meet all reasonable demands for electricity, in accordance with our legal obligations.

We plan the development of the transmission network taking account of the long-term electricity system needs and the relative performance of various development options.

We have both statutory[1] and licence[2] obligations to produce a Transmission Development Plan (TDP) annually. Before the TDP can be approved the Commission for Regulation of Utilities (CRU) is obliged to hold a public consultation on the draft TDP[3]. Based on the responses to the consultation we update the draft TDP, where necessary, and submit a consultation report alongside the final TDP for approval to the CRU.

This document is the consultation report on the TDP 2018-27 consultation. It describes the consultation process and provides an overview of the submissions received and our responses to the issues raised.

[1] Statutory Instrument No. 445 of 2000 (Paragraph 8) and EU Directive 2009/72 (Article 22)

[2] TSO Licence (Condition 8)

[3] European Directive 2009/72 (Article 22)

# 4 Description of Consultation Process

We consulted the CRU, ESB Networks in its role as Distribution System Operator (DSO) and System Operator Northern Ireland (SONI) prior to the draft TDP being issued for public consultation.

The CRU held the public consultation on the draft TDP 2018-2027. The draft TDP was posted for consultation on the CRU website on 17 April 2019 and the consultation ended on 15 May 2019.

A notification of CRU's consultation was sent, via email, to the CRU's stakeholders subscribed to CRU's info@cru.ie mailing list.

# 5 Purpose of the Transmission Development Plan

It is useful to outline the purpose of the TDP.

National and European strategic energy policy objectives set the context for investment in the Irish transmission system to ensure security of electricity supply, competitiveness of the national economy, and long-term sustainability of electricity supply in the country. To achieve these strategic objectives, it is necessary to invest in the development and maintenance of the electricity transmission system.

The primary objective of the TDP is to describe the transmission network reinforcements planned for the next ten years. The TDP explains:

- Our approach to network development;
- The drivers for investment, both policy drivers and technical drivers;
- The needs of the transmission network; and
- The planned network developments with expected project completion dates.

In so doing, the TDP raises awareness of planned network reinforcements. It is important to note that the TDP is neither a strategy-forming nor a policy-forming document.

# 6 Responses to the Consultation

The CRU received ten submissions in response to the consultation. These were from:

- Aughinish Alumina Limited;
- Bord Gáis Energy;
- Bord Na Mona;
- Coillte;
- Electricity Association Of Ireland (EAI);
- Innogy Renewables Ireland Limited;
- Irish Wind Energy Association (IWEA);
- SSE;
- Western Development Commission (WDC); and
- One confidential response.

We would like to thank all parties for their responses.

In the following sections we summarise and respond to the submissions.

## 6.1 Welcome for the Opportunity to Respond to the TDP Consultation

Most respondents welcomed the opportunity afforded them by the consultation process to comment on the plan.

## 6.2 Link to EirGrid's Tomorrow's Energy Scenarios (TES) and Grid Implementation Plan (GIP)

### 6.2.1 Bord Na Mona

"The contributions made by Bord Na Móna in the Tomorrow's Energy Scenarios consultation and resultant final document do not appear to have transpired into the TDP."

### 6.2.2 Coillte

"Design & consent for the development pipelines: Findings of "tomorrows energy scenarios" should feature in future iterations of the TDP. Ongoing active engagement with industry should be encouraged to create maximum early visibility of development pipelines. If we are to deliver on national renewable ambitions, the timing of design and consenting of transmission assets to meet these needs cannot be based solely on issued connection offers."

### 6.2.3 IWEA

"IWEA welcome EirGrid's new Scenario Planning approach to transmission development; however, it appears the outputs from the first cycle of the Tomorrow's Energy Scenarios analysis published in 2018 has not been included in the draft TDP."

### 6.2.4 WDC

"As it is a ten year development plan rather than a progress report, it would be expected that there should be some acknowledgement of EirGrid's long term planning work and how this might impact on developments to 2027. It is good to see a reference to 'Tomorrow's Energy Scenarios' but there needs to be more clarity as to how this relates to and informs the TDP. Similarly it should be clearer how the TDP links with the Grid Implementation Plan."

### 6.2.5 Our response

In July 2017 we published 'Tomorrow's Energy Scenarios 2017', the result of extensive consultations with stakeholders in planning our energy future. In March 2018 we launched 'Tomorrow's Energy Scenarios 2017 Locations Consultation', providing more information on our locational assumptions for future electricity demand and supply. Following this, we analysed how the existing and planned transmission grid performs under each of the scenarios over a range of timeframes. The results of this analysis were published in Tomorrow's Energy Scenarios System Needs Assessment (TESNA) report in December 2018. The needs identified in the TESNA are brought through our Six-Step Framework for Developing the Grid. As these needs and projects progress through the Six-Step process they will be included in future TDPs. EirGrid appreciates the responses that were received as part of the various consultations. These responses have been included in the relevant documentation where appropriate.

In regard to the link to Grid Implementation Plan (GIP), we undertake Strategic Environmental Assessments (SEA) of our Grid Implementation Plans every 5 years. This is to ensure that our approach to developing the grid is sustainable and in line with best environmental practice. EirGrid's second GIP was adopted by EirGrid in December 2018, and covers the period 2017-2022. It is based on available information at the time of drafting the IP and SEA in 2017. We will continue to review our plans on a regular basis. The GIP was adopted following public consultation and brings together a range of factors that influence how we plan for and implement grid development. These include:

- Ireland's Grid Development Strategy;
- Policies and objectives that we follow to ensure sustainable grid development;

- Project options from annual Transmission Development Plans (2016/2017); and
- Mitigation and monitoring developed through the SEA process.

The accompanying SEA Statement describes how environmental considerations and the views of stakeholders including the public have been taken into account in shaping the GIP.

## 6.3 Outdated / Relevance of Data

### 6.3.1 Bord Gais Energy

"We note however that the data freeze date for the draft Plan which means that the information in the GCS 2018-2027 has not been included. This unfortunately undermines the value, accuracy of the generation/ demand snapshots given. Given the differential between the 2017 and 2018 GCSs, particularly with regard demand forecasts, we think it remiss to plan the network based on what can be described as relatively 'old' demand information in particular."

### 6.3.2 Bord Na Mona

"Furthermore, we note the data freeze within the TDP as 01/01/2018 and are of the view this date could be closer to the time of issuing the TDP."

### 6.3.3 Coillte

"Publication of the document should be achieved in less than 12 months from the data freeze."

### 6.3.4 Electricity Association of Ireland (EAI)

"The information contained in the draft Transmission Development Plan (TDP) is significantly out-of-date and in some cases the source of information used is unclear. As such the relevance of the information is significantly limited and calls

into question the value of the consultation itself. The draft TDP data freeze date is noted as 1st January 2018, but this is further based on even older information on demand and generation from the Generation Capacity Statement (GCS) 2017 and the All-Island Ten Year Transmission Forecast Statement (TYTFS) 2017."

And:

"Another point to note regarding the information and potential relevance of data used in the draft TDP is the extent of change from TDP 2017 to draft TDP 2018. It is noted that TDP 2017 had a data freeze of March 2017 and draft TDP 2018 has a data freeze of January 2018 - a time period of nine months. In this period, it is noted that 30 new projects were added to the plan whilst 15 projects are on hold and a further single project was cancelled. It is therefore worth questioning that if this is the scale of change that is reported to have occurred in a nine month period, given that the data freeze for the draft TDP of January 2018 is already sixteen months ago, it is likely that there have been numerous (and potentially major) changes to the plan during this time period. This is particularly relevant given the changes to demand forecasts that have occurred in this time period. This again calls into question the relevance of the information that is being used in the draft TDP."

### 6.3.5 IWEA

"IWEA notes that given the all project data for this report is frozen as of 1st January 2018, the overall value of the report is questionable, especially given that EirGrid produce updated Associated Transmission Reinforcement (ATR) reports on the EirGrid website. IWEA appreciate the need to have a common data freeze date across all publications; however, we would recommend a data freeze date within a maximum of six months of publication."

### 6.3.6 WDC

"This CRU consultation is on the Transmission Development Plan for 2018-2027. In the Plan it is never explained why this is the period covered. Given that this is 2019, and the final document will not be published until summer 2019 at the earliest, there should be some explanation of the time horizon chosen (i.e. why is it not a 2019-2028 plan?)."

And:

"We are aware that the data freeze was 1st January 2018, but as the TDP is largely a progress update on projects it is not clear why this data freeze is required (given that this is not a modelling exercise and projects in their early stages are not included), and if it is required why it is not 1st January 2019, or 1st March 2019? While the time period under consideration might not be considered important it does make the updates and progress with documents somewhat out of date or unclear; it is not always evident whether it is taking full account of decisions made, for example, in 2018."

And:

"As the data freeze was in January 2018 the map on page 59 shows projects at that time. It is now May 2019, it would be useful to have a more up to date map, showing progress more clearly."

### 6.3.7 Our response

Transmission network development is continuously evolving. To help the comparison of network development projects year-on-year, and in the interest of routine reporting, data is represented at a fixed point in time – the data freeze date.

The TDP summarises transmission projects at a point in time and the changes that have happened since the last TDP, with data applicable as at the data freeze date.

Transmission Development Plan 2018 has a data freeze date of 01 January 2018. TDP 2018 was therefore based on the best information available at this date. Changes that occur after the data freeze date are captured in future TDPs. Generation Capacity Statement 2018-2027 was published in October 2018. GCS 2018 and future GCSs will be incorporated into future TDPs.

We endeavour to publish the development plan within the year in question, which has not happened with TDP 2018. The TDP is an annual document; there will be a TDP 2019 which is expected to issue for public consultation in Quarter 3 2019.

We note in the TDP that we publish an Associated Transmission Reinforcement (ATR) status update quarterly to provide customers with up to date information regarding the progress of the delivery of ATR projects. ATRs are projects associated with the delivery of transmission network infrastructure necessary for the firm access of customers. The ATR status update includes information on:

- Scheduled ATR Completion dates; both the assumed completion date used in latest Firm Access Quantities (FAQ) Analysis (2012) and latest updated completion date;
- Changes to the ATR since previous quarterly update; and
- Any comments on the ATR, including information on project risks. This information is updated every quarter and available on our website.

The quarterly ATR status update can be found at the following website:

- Associated Transmission Reinforcements (ATRs), http://www.eirgridgroup.com/customer-and-industry/general-customer-information/operational-constraints/

The ten year time horizon of the TDP is chosen to align with the requirement in EU Directive 2009/72 (Article 22). It should be noted that Irish legislation and EirGrid's Licence requires a TDP with a 5 year time horizon. TDP 2018 is a snapshot in time. The TDP is updated and produced every year. The next TDP (TDP 2019), which is expected to be issued for consultation in quarter 3 2019, will cover the period 2019 to 2028. It will include a more up to date map.

## 6.4 Network Development in the North-West

### 6.4.1 Confidential Respondent

"It is understood that the current ESBN 110 kV infrastructure in Inishowen Peninsula is used to its maximum for export of existing generation capacity...

Given the network constraints in this region and the wind energy potential, I would urge CRU to consider a significant 110 kV network development in the region to facilitate the distribution of the proposed wind energy generation and cater for this in the final Transmission Development Plan for 2017-2027."

More details about the connection methods are given in the actual response.

### 6.4.2 Coillte

"Expedite the existing critical TDP projects:

Existing reinforcement projects that have not progressed over the last number of years should to be brought forward. As an example, the North West Project has seen little progress over the last number of TDP's. In light of the expected

ambitious RES-E target, Coillte would recommend that this and other similar projects be urgently progressed. We would expect that it should be possible for step3 of the North West project to be completed in advance of the next TDP."

And:

"The progress of some of the transmission reinforcements is concerning when the TDP is compared to previous TDPs. The North West Project is an example. This project is the reinforcement of the Co. Donegal transmission system, allowing for the increasing renewable generation contracted in Gate 2 and 3... However, in the past four TDPs it has been listed as being in phase/step 2 and there has been no visible change of the status of the project."

### 6.4.3 Innogy Renewables

"...Innogy wish to highlight in particular our concerns with regard to the ability of the grid system in the North West to facilitate the future pipeline of projects ... with the intention of connecting in the coming years to contribute to meeting Ireland's target of 70% renewable electricity 2030."

And:

"There have been continued delays to projects in this region such as the North West Project (CP0800) comprising Phase 1 of the wider Renewable Integration Development Plan (RIDP) - the latest date of completion for which is now 2027 per the current TDP 2018-2027... In the past four published TDPs this project has been listed as being in "Step 2" of the Grid Development process and there has been no visible change in the status of the project."

### 6.4.4 IWEA

"There have been continued delays to such projects as the North West Project and the wider Renewable Integration Development Plan (RIDP) project ... and first appeared in an EirGrid TDP in 2010. In the past four TDPs this project has been listed as being in Step 2 of the Grid Development process ... (the) project remains a Project of Common Interest and this is selected in the latest ENTSO-E Ten Year Transmission Development Plan (TYNDP)."

### 6.4.5 SSE

"...lack of development in the North West. Grid West project has been downgraded to a 110 kV solution and RIDUP has been put on hold. This region has some of the best wind sites in the country but is very underdeveloped in terms of grid infrastructure."

And:

"RIDP has "project of common interest" status ... (and) this should place some significance on this project in terms of prioritisation. Instead, this project has been on hold for some time ..."

And:

"... There cannot be a mitigation of network challenges and meeting of demand, without facilitation for new generation in key areas, which we consider this region (North West) to be."

And:

"SSE would ask EirGrid to consider this approach on the North Connaught 110kV redevelopment project which has a scheduled delivery time date of 2024. The North Connaught redevelopment project was downgraded from a 400 kV solution to

a 110 kV redevelopment project for consenting reasons. These technologies could increase the capacity of the 110kV solution or allow EirGrid to uprate to 220 kV without creating a significant additional planning risk."

### 6.4.6 WDC

"We are, however, concerned at the pace and scale of development of new transmission circuits elsewhere in the region. The areas of particular concern in the medium term are Co. Donegal and North Mayo/West Sligo."

And:

"North West Project CPO 800:

The existing transmission system in Co. Donegal has the capacity to accommodate approximately 390 MW to 570 MW of renewable generation without the need to constrain the output of the generators. By 2022 it is expected that the connected renewable generation will increase to 604 MW, exceeding the capacity of the existing transmission system. Without transmission investment, constraints of these generators could increase to moderate levels. For the past 10 years EirGrid have been considering developing new transmission circuits into Co. Donegal but there appears to be little progress in bringing the project beyond the concept stage."

And:

"North Connacht Project 110kV Reinforcement CPO 816:

The completion of the planned North Connacht reinforcement will only at best facilitate the existing contracted generation and if the ECP-1 capacity also connects then it is very likely there will be no capacity for any new renewable generation connections. The originally planned GridWest infrastructure would have provided an

'electrical motorway' to unlock the substantial potential of North West Mayo for renewable generation.

The new North Connacht 110 KV project does not provide any capacity for the development of new renewable generation in the North Mayo and West Sligo areas."

### 6.4.7 Our response

We plan the development of the network using the most up to date information on future generation and demand. The process is dynamic to meet ever-evolving needs and to enable the strategic development of the system in the long-term. Each of the projects contained within the TDP are the product of on-going reviews that take into account the changing economic conditions.

The TDP presents our view of future transmission needs and our plan to develop the network through specific projects, to meet these needs over the next ten years in line with EirGrid's license obligations and European regulation compliance requirements. These needs have been identified by our Tomorrow's Energy Scenarios (TES) which are key to considering the range of possible ways that energy usage may change in the future.

The TES 2019 will be consulted on in the very near future. We encourage all stakeholders to engage fully with this consultation to help inform the scenarios and ensure the inputs of the scenario are appropriate.

As such, the transmission network is systematically analysed; constraints identified; and developments optimised in order to mitigate those constraints. Given the uncertainty regarding of key input assumptions, such as the level of potential new connections, it may be necessary to modify those analysis assumptions at key points in the technical investigation - This requires that further analysis be done to

determine the appropriate scale of the transmission development that is required. This iteration will mean that a project can spend a longer time in a particular step of the development process.

With regard to queries regarding Grid West and North Connacht projects, the projects were originally needed to facilitate all of the Gate 3 applications. However, due to some Gate 3 offers not being taken up, there is a need for only one project to progress. Therefore, in September 2017 we announced plans to replace Grid West with a smaller-scale 110 kV development, North Connacht 110 kV Reinforcement Project. As we write this response, we are progressing with this project, which is currently in Step 4 of our framework process.

## 6.5 Long-Term Planning and 2030 Renewable Energy Target

### 6.5.1 Bord Na Mona

"...The projects highlighted in the TDP, in the most part, are for addressing the needs of the short term and not necessarily out to the full scope of the document."

And:

"...It is essential that EirGrid recognise the need and have measures in place early to develop the grid to accommodate the growth required in renewable energy generation in order to be in a position to enable Ireland to meet its 2030 targets."

### 6.5.2 Coillte

"Future iterations of the TDP should take account of the national policy context including the requirement that Ireland generates 70% of its electricity from renewable sources by 2030."

And:

"While we understand that the data freeze date for the current TDP pre-dated recent national policy developments in the renewable electricity space, we would like to take the opportunity to highlight the need for Ireland's national climate action plan to be considered in all future TDPs. Irelands draft NECP provided for the addition of significant volumes of onshore wind (approx. 2400MW), offshore wind (1800MW) and solar PV (1500MW) and the requirement for even greater volumes of each of these technologies is likely in light of the recent decision, in principle, to set a c.70% RES-E target for 2030."

And:

"EirGrid state in the methodology statement in the draft TDP that it develops the transmission system taking into account 'long term needs'. Recognising that it takes at times more than 10 years to develop new transmission circuits, there is widespread industry concern that the number and scale of new transmission circuits in development will fall significantly short of the level required to meet Ireland's grid needs within the 2030 - 2040 timeframe."

And:

"Historically, Eirgrid would have planned the transmission system on the basis of what they could see in Gate 2 & Gate 3. As projects didn't require planning in order to be eligible to receive an offer under Gate 2&3, renewable project development could proceed in parallel with the development of the transmission system. Eirgrid were able to use these connection offers to justify system reinforcements notwithstanding the fact that many of the grid applications submitted under these processes were highly speculative. Under current grid policy (which Coillte supports), projects require planning permission in order to be eligible for a

grid offer and this can involve development timelines of 3-5 years. If Eirgrid wait for these projects to emerge from planning and receive offers before starting to design and consent new transmission system infrastructure, then the consents for the projects could time out before the necessary transmission system infrastructure is in place and Ireland will fall well short of its targets. As such we would suggest that a new method of justifying system need is required. In this regard, EirGrid's new future energy scenario's approach to transmission development is welcomed but it appears the outputs from the first cycle of the scenario analysis has not found its way into this draft TDP. This is perhaps understandable, given the timing of the outputs from the future scenarios work and the data freeze date for this TDP. We would however expect to see the system needs identified in the future scenarios work addressed in the next TDP."

And:

"To accommodate the Gate 3 generation it appears clear that a new transmission circuit is necessary. The needs case for this new transmission infrastructure is only increasing with the ECP-1 generation receiving connection offers over the next year and the renewable projects in the queue for the next ECP batch. There is also evidence of multiple renewable projects in pre-planning development in Co. Donegal. As such, Coillte would request that this project be prioritised over the next 12 months to ensure that there is meaningful progress to report in the next TDP."

### 6.5.3 IWEA

"The current GCS does not consider the expected growth in renewable generation in order to meet Ireland's 2030 target of 70% renewable electricity generation. IWEA strongly recommends that EirGrid take this increased requirement into account

when considering planning for the future power system and not only plan to generation which is currently contracted to the grid."

And:

"It is evident from the results of the IWEA developers survey, that there will be a substantial level of additional renewable generation connected to the power system between 2020 and 2030. A strong transmission grid which has the capacity to deliver this renewable generation is essential." [Table 2 indicates 4250 MW of onshore wind projects].

### 6.5.4 SSE

"The TDP does not appear to align with the 2030 targets. Whilst current proposals would likely to deliver to the 2020 targets, the 2030 targets would not be delivered without significant additional activity within the proposed time-period up to 2027. One example of this is in relation to the Grid Link project."

And:

"To date, the infrastructure projects have focussed on need, but do not suggest a strategy towards reducing system challenges."

### 6.5.5 WDC

"We would also recommend that EirGrid assess the potential renewable generation in this area with a medium to long term horizon and bring forward further transmission investment to provide capacity for the development of new renewable generation."

And:

"There is no real discussion of the implications of the transition for long term grid development and it does not consider how we might begin to plan for 2030

targets or 2050 goals. There is no reference to the National Energy and Climate Action Plan, a draft of which was submitted to the EU in December 2018."

And:

"The TDP does not specifically refer to other key government policies driving change over the next 30 years, including the most significant of these: Project Ireland 2040."

### 6.5.6 Our response

In March 2019 the Minister for Communications, Climate Action and Environment, Richard Bruton, announced that he intended to set a target of 70% of electricity from renewable energy sources by 2030. In June 2019 the Irish Government confirmed this target in its Climate Action Plan 2019. In order to meet this target, investment will be needed in new renewable generation capacity, system service infrastructure and electricity networks. The new renewable generation capacity is expected to include a range of technologies. The impact of these policy developments and others, including Project Ireland 2040 and evolution of electricity connection policy, will be captured through Tomorrow's Energy Scenarios, and also as individual projects progress through the connection offer process. Needs identified in the Tomorrow's Energy Scenarios System Needs Assessment are brought through our Six-Step Framework for Developing the Grid. As these needs and projects progress through the Six-Step process they will be included in future TDPs.

The purpose of the TDP is to provide project information in respect of developments that address security of supply; connections (generation and demand) and interconnections. The developments identified in the TDP cover the

next 10 years and are based primarily on contracted connections, while recognising the broader strategic context.

The development of the grid attempts to be strategic, insofar as it is possible, through the recognition of generation connection locations and demand centres; and the consideration of relative performance of reinforcement options capable of providing additional capacity in the appropriate areas of the network.

Consideration of additional network capacity is a criterion that is used as part of the option selection process described in Section 2.4 in the TDP. Recognising that the provision of additional capacity comes at a price there is a limit to what is considered acceptable given future uncertainty.

Given that the grid development process is iterative we are confident that the development of the power system is appropriate, while recognising that there remain deliverability risks (especially in respect of timing) when delivering infrastructure projects.

## 6.6 Impact / Risk Associated with Projects

### 6.6.1 Bord Gais Energy

" An understanding of the impacts of project non-progression on constraints and TLAFs at least would provide all interested parties with the information required to understand their importance (and costly and/or practical impacts)."

### 6.6.2 IWEA

"The risk associated with projects should be identified. It should be noted that the generator bears the risk of delays to transmission infrastructure and information regarding the risks should be made available."

### 6.6.3 Our response

The purpose of the TDP is to outline the plan for the development of the transmission system in order to guarantee security of supply taking into account existing and planned demand, generation, transmission and distribution. The projects in the TDP are required to ensure that the transmission system complies with the Transmission System Security and Planning Standards (TSSPS) taking into account existing and forecast supply and demand. The value of a project to customers is that the transmission system is safe, secure, reliable, economical and efficient, and complies with the TSSPS.

While we understand the importance of constraints and TLAFs to customers, it is not the purpose of the TDP to report the impact of the non-progression of a project on constraints and TLAFs, and we do not envisage expanding the TDP to report the impact of the non-progression of a project on constraints and TLAFs.

Section 5.3 of TDP 2018 highlights that the development of the transmission network is subject to delivery risk. We use risk management plans and processes to identify, analyse, monitor and manage project and programme risks. We provide project Estimated Completion Dates (ECDs) based on the best project information available at the time of the data freeze, 01 January 2018. Certainty with regard to completion dates increases as a project progresses.

## 6.7 Interconnectors

### 6.7.1 Bord Gais Energy

"BGE would expect to see at least initial plans for Celtic driven reinforcement needs in the Cork area particularly given the mooted landing point for the interconnector is to be Cork. Indeed those necessary plans may actually have knock-on impacts on other planned transmission projects (whether positive or

negative) thus the earlier insight is available on necessary network investments to accommodate Celtic, the better for all involved. The level of understanding needed (to enable reaction through project decisions, investments and in particular the optimum connection point on the network for Celtic) should in our view cover for example: a) the impact of Celtic coming into Knockraha on constraint projects in the west; b) Whether the Knockraha entry would effectively block renewables power coming into Cork and divert it instead back towards Moneypoint (impeding the materialisation of one of the benefits mooted for Celtic of enabling RES exports; c) the impact of Celtic on TLAFs, constraints in Cork or elsewhere."

And:

" A major BGE concern at present is that, in the context of an apparent (from the draft Plan) lack of planned deep reinforcements and already poor TLAF factors in the area, the addition of the Celtic interconnector into the Knockraha station in Cork could prove to be detrimental to existing investments in the Cork area."

### 6.7.2 SSE

"We note that the TDP process of project identification and other considerations, references the needs to manage local network constraints and to take account of the drive towards greater interconnection, specifically the possible interconnection projects Greenlink and Celtic. We would be encouraged by an overarching strategy underpinning the TDP, which aims to meet the effects of increased interconnection and locational constraints on the Irish system."

### 6.7.3 Our response

The TDP is a snapshot in time that provides project information in respect of developments that address security of supply; connections and interconnections such as the Celtic and Greenlink interconnectors.

The TDP is not intended to assess the economic impact (or otherwise) of third parties such as renewable generators as a result of the integration of new connections or interconnections. Indeed the focus of developments undertaken by the TSO is to ensure the integrity of electricity supply and facilitate the best possible value to the Irish electricity consumer.

The TDP details transmission developments that are the result of a rigorous project development process that is described in Section 2.4 of the TDP. The process optimises the reinforcement alternatives to deliver the best possible outcome. Consequently, appropriate reinforcements will be brought forward when they are required.

## 6.8 Efficiency of the Grid

### 6.8.1 Coillte

"We would encourage Eirgrid to utilise their capacity for engineering innovation to manage constraint levels and create additional space for renewable generation through increased utilisation of smart network strategies. While this should reduce the need for significant new transmission system infrastructure, the requirement for ongoing investment in new lines remains."

And:

"It is now time for EirGrid to apply the same vigour to use smart grid technologies to maximise the ability of the transmission system to integrate renewables on a more local and regional basis, helping to reduce constraints of renewables. Without doubt, EirGrid are doing considerable work in this area. However, the scale, pace and transparency of these works needs now to be increased to the rate of innovation and implementation seen from EirGrid in the DS3 programme."

### 6.8.2 Our response

The integration of large amounts of non-synchronous intermittent energy poses challenges for the transmission system. We are overcoming these challenges with the combined approach of our world-leading initiative Delivering a Secure Sustainable Electricity System (DS3) and investing in the transmission system.

EirGrid has a proven track record in researching, developing and adopting innovate solutions and technologies. These include: extensive use of new conductors to uprate existing lines; using series compensation to maximise the use of existing transmission corridors; trialling power flow management technologies; trialling the use of new towers to facilitate up-voltaging of existing transmission corridors; trialling the use of new composite poles; developing and rolling out new system services, operational policies and tools.

## 6.9 Offshore Development

### 6.9.1 SSE

"SEE are encouraged by the fact that Eirgrid and ESBN are considering increasing the voltage of the second Arklow - Carrickmines OHL from 110kV to 220kV. This was flagged as being a necessary reinforcement in the Eirgrid East coast generation opportunity assessment published earlier this year. This will facilitate important generation expansion in this area, particularly given that under this study, offshore was identified as critical to facilitating the new 2030 targets. Furthermore, this project is an example of where a relatively minor upgrade, in terms of cost, consenting and programme , could deliver a large volume of renewable generation to contribute toward renewable targets."

### 6.9.2 IWEA

"EirGrid's recent GCS does not take account of any offshore wind development, and IWEA would urge EirGrid and CRU to factor this development pipeline, the vast majority of which is off the East Coast, into future TDPs and EirGrid's wider grid development process."

### 6.9.3 Our response

In March 2019 the Minister for Communications, Climate Action and Environment, Richard Bruton, announced that he intended to set a target of 70% of electricity from renewable energy sources by 2030. In June 2019 the Irish Government confirmed this target in its Climate Action Plan 2019. In order to meet this target, investment will be needed in new renewable generation capacity, system service infrastructure and electricity networks. The new renewable generation capacity is expected to include a range of technologies including offshore wind development. These developments will be tracked through Tomorrow's Energy Scenarios and also as individual projects progress through the connection offer process. The needs identified in the Tomorrow's Energy Scenarios System Needs Assessment (TESNA) are brought through our Six-Step Framework for Developing the Grid. As these needs and projects progress through the Six-Step process they will be included in future TDPs.

One of the existing 220 kV circuits between Carrickmines and Arklow currently operates at 110 kV. Any change to the line will need to be considered with the DSO, including assessing the impact of providing an alternative 110 kV connection to Ballybeg 110 kV station.

## 6.10 Manage Demand Growth through Renewables

### 6.10.1 Coillte

"We are concerned that, in the absence of grid reinforcements, datacentre companies in the Dublin area may start to install their own fossil fuel generation plant on site to meet their needs. If this occurs at scale, this demand could potentially become inaccessible to renewable generation and instead start to act like additional minimum fossil fuel generation, resulting in higher curtailment of renewables and making it much more difficult to hit our renewable targets."

### 6.10.2 Our response

EirGrid is aware of the situation regarding the need to reinforce the grid to accommodate more renewable generation on the system. We have committed to increase the SNSP on the system to over 70% in the coming years and this will require more and more renewable generation being facilitated on the system.

By developing the grid to accommodate more renewables and integrate new demand we need to make sure we do it in a responsible manner by making sure we comply with the TSSPS requirements and do not impact security of supply.

In Dublin as in other areas, we have projects like CP0966, CP1021 and the Regional Solution that will support diverse power flows on the transmission system including the integration of very significant levels of renewable generation.

## 6.11 Region- or Substation-Specific Concerns

### 6.11.1 Aughinish Alumina Ltd

"The 110kV connection to AAL is fed from both the Limerick direction (Limerick – Moneteen, Moneteen –Aughinish lines) and the Tarbert direction (Kilpaddoge – Aughinish line). We have a major concern in relation to grid reliability and

security of supply. We have discussed with Eirgrid on many occasions the persistent problem of voltage disturbance and the impact on the alumina plant operation. Most of the disturbances are due to lightning strikes on the 110kv transmission system on one or both 110 kV lines feeding the plant ... In order to improve electrical system reliability and long-term plant viability we need to have the electrical system feeding the plant upgraded to meet the latest system standards ... We request that Eirgrid include the upgrade of the 110 kV transmission lines feeding the Aughinish plant with improved protection against lightning in the Draft Transmission Development Plan (TDP)."

### 6.11.2 Bord Gais Energy

"We note however that the majority of projects for the South-West and Mid-West area are focused on local area resolution which, while welcome, does little to appease ongoing BGE concerns with respect to the poor state of TLAFs and the constraints problem in the region."

And:

"The TLAF heatmap ... makes it clear that the Cork area is in dire need of Transmission projects to help resolve existing constraints."

### 6.11.3 Bord Na Mona

"One of our (BNM) activity areas for renewable energy development is within the midlands region and we note within the TDP very little reinforcement within the region."

And:

"From our (BNM) own analysis, we can already see congestion with existing generation both within the region and from power flows contributed by other generators outside of the (midlands) region."

And:

"The transmission network within the region requires long term contingency planning and merits investment which will … support increased power flows to service large demand centres."

And:

"The transmission network within the region requires long term contingency planning and merits investment which will … increase interconnection between the midlands and other regions which can offer the consumer the best value for electrical energy by reducing the need to incentivise generation developments using locational scalars and /or other mechanisms."

### 6.11.4 Coillte

"An example is the transmission development plans for the North West, Border, Midlands, West planning area. It is acknowledged in the draft TDP as a region where "*the excess of generation in the area is set to increase significantly in the coming years…. To cater for the high level of generation described above, network reinforcement is necessary*". However, there are only 6 new projects in this planning area compared with 13 and 11 in the other two planning areas."

And:

"The North Connacht project is an example of a project that does not appear to be considering the longer-term development needs of the North Mayo/West Sligo

region. The draft TDP only references the needs of contracted generation and does not appear to be considering future potential renewable generation in this area."

And:

"There are also other areas of Ireland's transmission system that will need new transmission circuits above those currently listed in this draft TDP. Examples include the Inishowen Peninsula in North Co. Donegal, West Galway and the North Cork/South Kerry region. EirGrid's Future Energy Scenarios System Needs Assessment published in 2018 also highlights areas where grid development is required such as the corridor from Sligo to Carrick-on-Shannon."

### 6.11.5 WDC

"...The MullanGrid study for the WDC showed that in the longer term there are other areas of the WDC region that will need transmission investment. This would include areas in Leitrim and Roscommon or more broadly in Sligo/Leitrim/South Roscommon, South Mayo and West Galway. The TDP should be outlining high level options for these areas."

### 6.11.6 Our response

The purpose of the TDP is to outline the plan for the development of the transmission system in order to guarantee security of supply taking into account existing and planned demand, generation, transmission and distribution.

The TDP presents our view of future transmission needs and the specific projects that are required to meet these needs over the next ten years in line with EirGrid's license obligations and European regulation compliance requirements. These needs have been identified by our Tomorrow's Energy Scenarios (TES) which are key to considering the range of possible ways that energy usage may change in the future. The specific projects in the TDP are required to ensure that

the transmission system complies with the Transmission System Security and Planning Standards (TSSPS) taking into account existing and forecast supply and demand.

With regard to the transmission network in the various areas identified by respondents such as Midlands, North West, West, Sligo, Leitrim, South Roscommon (and indeed at every location in Ireland); the network is systematically analysed; constraints identified; and developments optimised in order to mitigate those constraints.

In respect of TLAFs, the projects are not explicitly designed to improve TLAFs for customers. The value of a project to customers is that the transmission system is safe, secure, reliable, economical and efficient, and complies with the TSSPS.

Given that this process is iterative we are confident that the development of the power system is appropriate.

With regard to the quality of supply issues identified by Aughinish Alumina Ltd, there are no quality of supply criteria related to lightning that are addressed by the TSSPS for which we develop the network. Such issues would be addressed via design standards such as the requirement for shield wires and by stipulating tower footing resistance limits. The TDP is not intended to address the need to fit shield wires onto existing lines. If there were works planned for the line, such as line refurbishment, EirGrid would assess the need for shield wires at that time.

## 6.12 Provide More Project Information in the TDP and on EirGrid's Website

### 6.12.1 Bord Gais Energy

"Across all areas the reasoning for projects contains quite generic statements in the main. While rationale is given for all projects these tend to be high level (e.g. references to drivers being "security of supply" or "due to local constraints on the

transmission and distribution networks"), with detail behind the drivers often lacking. While the level of technical detail behind such rationale can be complex and lengthy, we believe that a better balance between high level insight on drivers for projects as against additional detail that provides interested parties better understanding of what is happening in an area such that certain projects are necessary, is required. For example, when it comes to security of supply being a driver for a project BGE believes that the level of additional detail that would go someway towards our desire for better understanding of drivers, would be whether such projects are for example driven mostly by local voltage concerns/ due to an imminent windfarm with planning permission connecting nearby / due to transmission flow impacts expected from the connection of large new generation or interconnection / due to a mixture of some or all of these?"

### 6.12.2 Coillte

"The transmission project updates included in Appendix B should be published on EirGrid's website and updated on a regular basis similar to the updates provided on ATRs. This would improve EirGrid's transparency to existing and future users of the Irish transmission system. On page 24 of the draft TDP there is a link to transmission capital expenditure monitoring for individual projects on the CRU website. We are unable to find recent reports on this monitoring on the CRU website."

### 6.12.3 IWEA

"Details on the success of project roll-out to date based on dates provided in previous TDP's should be provided. This will enable stakeholders to have a reasonable estimate of future success."

### 6.12.4 WDC

"The Transmission Development Plan is an important publication which should provide clear rationale for individual project investments and clear updates on progress on projects and changes to project plans so that monitoring of infrastructure development is enabled."

And:

"As the TDP is a ten year rolling plan, if the TDP is to be of use to readers changes in the plan from year to year should be clearly highlighted."

And:

"In each of the regional sections, background to the projects is provided but in most cases the reader is then required to turn to the appendix to find any update or changes in progress. A summary of project progress should be included alongside each project (for example the relevant row from the table in the Appendix). In the Appendix carrying over row headings from page to page would also help."

And:

"Clarity about developments, with contextual information and sufficient data underlying decisions are essential for people and organisations to gain an understanding of key investment decisions, ongoing projects and to monitor progress."

### 6.12.5 Our response

The TDP seeks to standardise the reporting of the projects into defined categories. These are described in Section 3 of the TDP (Investment Needs) and with further

detail described in Section 5.1 (Planned Network Developments). The content is provided for each project including project drivers.

Thank you for your observation regarding the link to the transmission capital expenditure monitoring on the CRU website. The reports are no longer available on the CRU website. We will update the TDP to reflect this. Please note that the CRU has introduced two new annual monitoring reports[4] as part of its Decision CER/18/087 "Reporting and Incentives under Price Review 4".

The TDP provides project information at a snapshot in time. It presents our plan to develop the network through specific projects to meet transmission system needs over the next ten years in line with EirGrid's statutory and licence obligations. Changes to the plan since TDP 2017 can be found in Section 4 of the TDP "Changes to the plan since 2017". In addition, Appendix B contains a list of all active projects, including their estimated completion dates. Previous TDPs can be consulted to track changes in estimated completion dates.

We believe that the information provided in the TDP in respect of the planned developments of the transmission system is appropriate and satisfies the statutory obligations placed on EirGrid. We will continue to seek to improve the quality of the reporting. We value any feedback that is provided in order to continue to improve the quality of the reporting and to continue to meet the evolving needs of our stakeholders.

[4] http://www.eirgridgroup.com/site-files/library/EirGrid/201553-Eirgrid-Investment-Planning-Delivery_LR5.pdf and http://www.eirgridgroup.com/site-files/library/EirGrid/201553-Eirgrid-TSO-and-TAO-Report_LR5.pdf