

Transmission Development Plan 2021 – 2030

Consultation Report

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Abbreviations

ATR	Associated Transmission Reinforcement
CRU	Commission for Regulation of Utilities
DSO	Distribution System Operator
ECD	Estimation Completion Date
ESB	Electricity Supply Board
FAQ	Firm Access Quantity
OSS	Operating Security Standards
RES	Renewable Energy Sources
RIDP	Renewable Integration Development Project
SOEF	Shaping Our Electricity Future
TDP	Transmission Development Plan
TES	Tomorrow's Energy Scenarios
TESNA	Tomorrow's Energy Scenarios System Need Assessment
TSO	Transmission System Operator
TSSPS	Transmission System Security and Planning Standards

Glossary

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 circuit and busbar upratings, new stations and new circuits.

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 down, it is eligible for compensation in the manner set out in the Trading and Settlement code.

1. Introduction

As the Transmission System Operator (TSO) for Ireland, EirGrid is responsible for the development of the electricity transmission network. We are obliged to develop a safe, secure, reliable, economic, and efficient transmission network to meet all reasonable demands for electricity, in accordance with our license conditions.

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

We have both statutory¹ and licence² 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 TDP³. 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 2021-2030 (TDP 2021) consultation. It describes the consultation process and provides an overview of the submissions received, our responses to the issues raised and the changes that we will make to the draft TDP 2021 in response to the feedback received.

1.1 Description of consultation process

The CRU is responsible for holding the public consultation on the draft TDP. For TDP 2021, the draft version was published for consultation on the CRU website on 08 March 2022 and the consultation closed on 19 April 2022.

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

1.2 Purpose of the Transmission Development Plan

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

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

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

² EirGrid Transmission System Operator Licence (Condition 8)

³ European Directive 2009/72 (Article 22)

- 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.

1.3 Updates to the TDP following Consultation

As a result of the consultation responses, we have recognised the need to give more granular data on projects. We have added some additional columns to the tables in Chapter 5 of the TDP that show whether projects are TSO or DSO led, and we are also providing information on whether projects are also ATRs.

In addition to this, we are also reviewing the process for creating the annual TDP and investigating what can be done to provide more timely information on project delivery and expected completion dates.

2 Consultation Responses

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

- Future Energy Ireland;
- Western Development Commission;
- Bord na Móna;
- Bord Gáis;
- EDF Renewables; and
- Wind Energy Ireland.

EirGrid takes a consultative approach to grid development and we place stakeholders at the heart of all decisions taken in relation to how we develop the grid. We would like to thank all parties for their responses. All responses are reviewed and considered, and where possible, incorporated into the final TDP 2021-2030. In addition, relevant feedback that was not incorporated in the current TDP has been noted and will be considered for future TDPs.

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

2.1 Overall TDP consultation

All respondents welcomed the opportunity provided by the CRU's consultation process to comment on the plan. EirGrid is pleased that there is support for the consultative approach taken to the development of the TDP and we will continue to work with our stakeholders on development of the TDP.

2.2 Key Feedback

2.2.1 Grid development and 2030 renewable electricity target

2.2.1.1 Comments received

A number of respondents are concerned that the existing grid and the upgrades proposed do not adequately support delivery of the Government's new targets of up to 80% renewable electricity (RES-E), i.e. 8GW of onshore wind, 5GW of offshore wind and 1.5-2.5GW of solar. It has been commented that those new targets, outlined in the Climate Action Plan 2021⁴, are unlikely to be met without a parallel development of the transmission system to accommodate the expected renewable volumes.

Respondents have also commented that there is a lack of consideration for the network development in generation and large demand connections such as windfarm and data centres developments. They believe that this situation creates a potential gap for development of the transmission system which may require EirGrid to focus some of its resources to facilitate these connections.

⁴ <https://www.gov.ie/en/publication/6223e-climate-action-plan-2021/>

In addition to network development, respondents have also argued that when coupled with increased electricity demand, the existing transmission and distribution systems were not designed for the increased levels of power flows that are expected over the next few years.

Other concerns expressed by respondents include:

- The draft TDP does not deliver on system needs to 2030 because not all Shaping Our Electricity Future (SOEF) candidate reinforcements and the needs identified in the latest Tomorrow's Energy Scenarios System Needs Assessment (TESNA) are considered in the TDP.
- There are several onshore renewable energy projects located in the midlands that were overlooked in SOEF and consequently the network required to support these projects has also been overlooked.
- The TDP does not reflect the number of offshore developments expected along the East, South, and West coasts of the country within the next ten years.
- New network substations should be planned for ease of future expansion of additional bays and even additional voltage levels, particularly for GIS stations.

2.2.1.2 *Our response*

At the end of 2019, EirGrid and SONI launched a five-year strategy to transform the electricity systems in both jurisdictions focusing on the transformation of the power system and electricity market.

The Climate Action Plan (CAP) sets the targets to be achieved by EirGrid. Among the most important measures in the CAP 2021 is to increase the proportion of renewable electricity up to 80% by 2030, including an increased target of up to 5 Gigawatts of offshore wind energy. As TSO, EirGrid must manage this transformational change whilst ensuring security of supply to all electricity users.

EirGrid is making the grid ready to take on more electricity from renewable sources to deliver a cleaner energy future. The use of renewable electricity jumped from 36% in 2019 to 43% in 2020. Up to 75% of the electricity flowing on the electricity grid at any point in time can now come from variable renewable sources following the completion of the ground-breaking DS3 project. The Ireland and Northern Ireland power system is the first in the world to reach this level, overcoming major technical challenges associated with integrating electricity from wind farms, solar farms and interconnectors.

Regarding the connection of large demand connections such as data centres, EirGrid is aligned with the CRU direction on data centre connections to the grid in Ireland issued in late 2021⁵. This direction requires EirGrid, and ESB, respectively, to assess future data centre connections based on: the location of data centres with respect to whether they are within a constrained or unconstrained region of the grid; the ability of the data centre applicant to bring onsite dispatchable generation (and/or storage) equivalent to or greater than their demand in order to support security of supply; and the ability of the data centre applicant to provide flexibility in their demand by reducing consumption when requested.

All needs and candidate solutions identified as part of the most recent Tomorrow's Energy Scenarios System Needs Assessment (TESNA) and SOEF respectively have to enter EirGrid's Framework for Grid Development. Those needs or candidate-solutions which at the time of the data freeze have completed Step 1 of EirGrid's Grid Development process will be reported in the TDP. Currently EirGrid

⁵ <https://www.cru.ie/wp-content/uploads/2021/11/CRU21124-CRU-Direction-to-the-System-Operators-related-to-Data-Centre-grid-connection-processing.pdf>

is studying and analysing all of the candidate solutions reported in the SOEF Roadmap report published at the end of 2021. Once these projects pass Step 1 of EirGrid's Framework for Grid Development process, they will be reported in the next version of the TDP.

The projects modelled in our simulations, which consider future scenarios for different regions, must take into account the likelihood of a particular project being developed or planned in the area under investigation. These scenarios may be modified in future iterations of SOEF to including new projects such as onshore and offshore windfarms or exclude projects that have lapsed.

Onshore and Offshore wind farms are a key enabler for Ireland to meet its 2030 targets of 80% RES-E. EirGrid is preparing for a future electricity system and windfarms are an important part of this and participate actively in the energy market. In February 2022, engineers in our control centres managed a power system comprising over 70% wind power. This important technical achievement is a testament to the work that EirGrid has undertaken to reshape the grid and meet the targets set out in the Government's Climate Action Plan 2021.

Offshore wind generation developments will be reported in future TDPs. The first stage of processing offshore wind generation connection applications was undertaken by EirGrid following the CRU decision CRU/20/020, and upon confirmation of the projects to be included. The outcome of the first stage, EirGrid's report on "Offshore Phase 1 Projects – Grid Connections Assessment" was published in October 2021, CRU/21/112a⁶. On 11 October 2021 the CRU published a proposed decision paper, CRU/21/112⁷, which outlined proposals for Phase 1 offshore grid connection applications processing. In that paper the CRU proposed the introduction of the concept of a Grid Connection Assessment (GCA) and related criteria for Phase 1 applicants. This was proposed as the next stage of the process for Phase 1 applicants in advance of seeking to gain access to full grid offers.

EirGrid is processing offshore projects through the GCA and working on the studies to determine the connection requirements, which will be a precursor to a Connection Agreement, and then any infrastructure required to be completed for a new project to connect to the network will be progressed through the EirGrid's Framework for Grid Development and reported in future TDPs.

We are overcoming challenges like future expansion of additional bays and additional voltage levels in GIS stations through the combined approach of our Operational Pathways to 2030 Programme as part of SOEF and investing in the transmission system.

⁶ <https://www.cru.ie/wp-content/uploads/2021/10/CRU21112a-EirGrid-Offshore-Phase-1-Projects-Grid-Connections-Assessments-March21.pdf>

⁷ <https://www.cru.ie/wp-content/uploads/2021/10/CRU21112-Proposed-Decision-Offshore-Grid-Connection-Assessment-Phase-1-projects.pdf>

2.2.2 Network development in specific regions

2.2.2.1 Comments received

Some respondents expressed concern regarding the lack of network development in specific regions. The specific areas of concern with regards to grid development highlighted by respondents were:

- The Midlands, where there are several onshore renewable energy projects that may have been overlooked in the first iteration of SOEF. As a consequence, the network needs to drive these projects may be underestimated. It has been suggested that EirGrid should consider a 400kV and/or 220kV tie-in substation in the Midlands, to bring more capacity to the existing underlying 110kV network.
- In Cork, where one of the respondents has expressed concern about the lack of clarity on network improvement in the Cork area to mitigate congestion and power exports issues before the commissioning the Celtic Interconnector.
- North Mayo and Donegal, where it has been mentioned that these areas require new transmission circuits above those currently listed in the draft TDP.
- The North-West, where the respondents consider that the region has one of the best wind resources for offshore windfarms in Ireland and a lack of investment in the region's network undermines its usability.
- There is also a concern about the cancellation of the North West project CP0800, and whether this project will be replaced, given that the drivers for the CP0800 still exist.

2.2.2.2 Our response

With regards to grid development in the Midlands, we are currently progressing the following projects:

- Thornsberry 110 kV station – busbar uprate (CP0724)
- Coolnabacky – Portlaoise 110 kV line uprate (CP0835)
- Cloon – Lanesboro 110 kV line refurbishment (CP0903)
- Lanesboro 110 kV station redevelopment (CP0919)
- Power flow control scheme (CP1048)
- Shannonbridge 220 – 110 kV station: new 220 kV transformer bay – Battery connection (CP1058)
- Bracklone 110 kV New Station and loop-in to Cashla – Shannonbridge – Somerset Tee 110 kV circuit – Solar farm connection (CP0644)
- Loughteague (CP1060)
- Kilcumber 110 kV station (CP1120)
- Cloghan windfarm (CP1130)

Some projects in their early stages (TDP Chapter 6) will also support the grid development in the Midlands:

- Flagford – Sliabh Bawn 110 kV circuit thermal capacity (CP0817)
- Lanesboro – Mullingar 110 kV circuit thermal capacity (CP1000)
- Lanesboro – Sliabh Bawn 110 kV circuit thermal capacity (CP1078)
- Cushaling – Newbridge 110 kV line, Station bay conductors and lead-in conductor uprate (CP1149)

The candidate solutions listed in Appendix 3 of the Shaping Our Electricity Future Roadmap report⁸ outline the projects that will be studied as part of the network development of all regions. Several 110 kV uprate projects were proposed as candidate solutions for the Midlands:

- Athlone – Lanesboro 110 kV circuit 1 uprate.
- Rinawade – Dunfirth T 110 kV circuit uprate
- Maynooth – Timahoe 110 kV circuit uprate
- Maynooth – Rinawade 110 kV circuit uprate
- Kiltel – Maynooth 110 kV circuit uprate
- Baroda – Newbridge 110 kV circuit uprate
- Cushaling – Newbridge 110 kV circuit uprate

Like any candidate solution or need identified, proposed uprates will be analysed to make sure that the assumptions underpinning the Shaping Our Electricity Future Roadmap include recent developments in demand and generation in that area. If changes are required, these will be taken into account in the assessment of the solution options required for the identified need. Once the need is robust the project will progress through our Framework for Grid Development.

The current projects, together with the candidate solutions and other possible future candidate solutions near the Midlands region will strengthen the network in this area, helping to accommodate future renewables connections such as onshore wind farms.

With regard to Cork, and the planned connection of the Celtic Interconnector, a number of station upgrades and line refurbishments are underway to ensure security of supply, and to maintain the necessary levels of reliability and flexibility in this region of the transmission network. We are currently progressing the following projects:

- Kilpaddoge – Knockanure and Ballyvouskil - Clashavoon 220 kV Line Uprates and Kilpaddoge - Tarbert 220 kV Line Refurbishment (CP0763)
- Kilpaddoge 220 – 110 kV New Station (CP0647)
- Knockraha 220 kV Station Upgrade (CP0796)
- Moneypoint to Knockanure 220 kV Project (CP0726)
- Clashavoon – Macroom No. 2 New 110 kV circuit and increased transformer capacity in Clashavoon 220 – 110 kV (CP0829)
- Ballyvouskill 110 kV Station – New Statcom (CP0935)
- Knockraha Short Circuit Rating Mitigation (CP0973)
- Knockraha – Raffeen 220 kV Line Refurbishment (CP0868)
- Glanagow 220 kV Station – Point on Wave Controller (CP0983)
- New 110 kV Station near Kilbarry (CP0949)
- Kilbarry Line Conflicts (CP1037)
- Ballyvouskill 220 – 110 kV Station – Temporary 50 Mvar reactor (CP1077)
- Aghada 220 – 110 kV Station – Battery connection, known as Aghada Battery Storage (CP1085)
- Kilbarry – Knockraha 110 kV No. 2 Line Refurbishment (CP0901)
- Trabeg 110 kV Station (CP0741)
- Aghada BESS 02 (CP1129)
- Cow Cross 110 kV Station (CP1132)

⁸ https://www.eirgridgroup.com/site-files/library/EirGrid/Shaping_Our_Electricity_Future_Roadmap.pdf

- Coolroe, Inniscarra & connected stations Protection Uprate (CP1160)

Regarding the current grid development that facilitate renewable connections in the West and North-West, we are developing one of the biggest infrastructure projects in the region, the CP0816 North Connacht project. CP0816 is a new circuit in the North-West and the first long cable project in the country. This new infrastructure is required to accommodate the renewable generation to be connected in North Mayo.

The Glenree – Moy 110 kV circuit is being uprated to support the significant levels of power flows introduced by new renewable generation already connected and future renewable generation in the process of connecting to the transmission and distribution system along the Western seaboard in Connacht and Ulster. This project has been reported in Section 6 of the TDP as CP1155.

Additionally, new circuits have been reported as candidate solutions in the SOEF Roadmap report and will be analysed to determine if they will progress through EirGrid's Framework for Grid Development. The proposed new circuits are as follows:

- Clogher – Srananagh 220 kV circuit 1., with
- Binbane – Clogher – Cathaleen's Fall – 110 kV Clogher tie-in.
- Drumkeen – Clogher 110 kV circuit 1 (Uprate)

There are also some candidate solutions comprising line uprates and new non-wire technologies (flexible network devices) for the North-West region above those currently listed in the draft TDP. These candidate solutions are:

- Flagford – Sligo 110 kV circuit voltage upgrade

This project results in the existing circuit becoming 2 new circuits:

- Flagford – Srananagh 220 kV circuit 2 (Up-voltage)
- Sligo – Srananagh 110 kV circuit 3 (Uprate)
- Sligo – Srananagh – Corderry 110 kV lines (Power flow controller)
- Letterkenny – Tievebrack – Binbane 110 kV lines (Power flow controller)
- Letterkenny – Cathaleen's or Letterkenny – Clogher 110 kV lines (Power flow controller)
- Cathaleen's Fall – Coraclassy 110 kV circuit 1 (Dynamic line rating)

The two lists above reflect EirGrid's commitment to grid development in West and North-West regions. The development of these candidate solution is expected to progress through the framework, and once an investment decision is approved, these projects will be reported in future versions of the TDP.

To date, the available wind resources in the North-West have been taken into account by developers for the construction of onshore wind farms, as demonstrated by the ongoing wind farm projects Lenalea (CP1127), Mully Graffy (CP1126), Croaghonagh (CP1011) and Golagh (CP1135).

The Renewable Integration Development Project (RIDP) was a proposal for a programme of network development projects to help integrate renewable energy in the West of Northern Ireland and the North West of Ireland. The network developments included new circuits in Ireland, Northern Ireland, and a cross-border circuit. The need for RIDP has been re-evaluated resulting in a proposal to close the project and terminate those elements of the project that progressed to an investment decision.

One of the RIDP projects, CP0800 North West Project, was progressed to an investment decision in 2013. This project called for a new 220 kV overhead line circuit between Srananagh 220 kV substation and a new 220 kV busbar and transformers at Clogher 110 kV substation in Donegal.

The need for new network development in the North-West of Ireland, between Srananagh substation and substations in county Donegal remains and has been identified in SOEF. However, the scope of the potential solutions under consideration has expanded to include additional technologies, and to include investigation of connection to several substations in Donegal. Consequently, a new project will be started to replace CP0800.

2.2.3 Market design, technology and innovation

2.2.3.1 Comments received

Respondents believe that to build and prepare a network capable of meeting the target of 80% RES-E by 2030 and accommodating up to 100% System Non-synchronous Penetration (SNSP), the market design needs to ensure that renewables and supporting technologies can bid into the market.

Comments and suggestions include:

- Introduce frameworks to incentivise build-out of system support technologies, such as synchronous condensers and storage, will be necessary. It was also commented that innovation and changing market conditions for Power-to-X projects need to be considered.
- Utilise TSO capacity for engineering innovation to manage constraint levels and create additional space for renewable generation by using smart network strategies.
- TSO should have all the necessary control centre tools. One area of particular concern is the functionality of the Wind Dispatch Tool (WDT). The WDT must be upgraded immediately to enable the Available Active Power (AAP) to be considered for all set point instructions.
- It has been mentioned that planned uprates should be to the maximum rating permissible at that voltage level. Any new circuits or network reinforcements should consider future proofing new circuits, when possible, so that maximum use of new circuit route corridors is made, and new circuits can be voltage uprated with minimal effort or impact to the environment and local communities if required. For example, new 110kV cables could be constructed to a 220kV standard.
- Information has been requested on EirGrid's innovation projects, alternative network solutions such a storage, demand side response and smart wires.

2.2.3.2 Our response

EirGrid and SONI have a proven track record in the delivery of transformational innovation in support of the energy transition and are currently delivering a portfolio of innovative programmes to achieve the 2030 targets. The net zero carbon ambition now necessitates enhancing and accelerating our approach to overcome the natural limitations of many established technological, operational and market practices, delivering ever-greater innovation capability and solutions to address whole system challenges

As the Transmission System Operator, EirGrid is committed to developing innovative ways to operate and plan the network. Innovation and research are key enablers to deliver our Strategy 2020-2025. More information can be found in EirGrid's website⁹.

⁹ <https://www.eirgridgroup.com/about/innovation-and-research/>

Our Annual Innovation Report¹⁰ documents progress on innovative programmes throughout 2021, as well as EirGrid's ambition for future developments of programmes and new initiative to incentivise build-out of system support technologies.

The decision-making process for projects that are evaluated in the EirGrid's Framework for Grid Development are analysed using a multi-criteria assessment, so that for a planned uprate to consider the maximum rating permissible at a specific voltage level, all of the five criteria must be considered, and purely technical aspects will not always prevail.

In terms of future-proofed considerations, it has been suggested that in order to take this issue into account, one could evaluate, for example, the designs of new 110 kV cables that would be constructed to 220 kV standards. As TSO, EirGrid does not recommend such designs, as a 220 kV cable cannot be accommodated in some of the remote parts of the network due to electromagnetic transient issues. New technologies and innovations are constantly evaluated and considered in the network development where appropriate, to ensure security of supply.

With regard to the query on Control Centre Tools, enhancements to the Wind Dispatch Tool are being considered as part of SOEF under the Scheduling and Dispatch workstream.

A part of the developing and adopting innovative solutions we want to work with innovators to see how new technologies can enhance the power system. Information on EirGrid's key innovation projects can be founded on the website¹¹.

2.2.4 Provision of more project information

2.2.4.1 Comments received

Several respondents suggested that there are opportunities within the TDP to provide more up-to-date information on the development of the network, which would be beneficial for the industry and relieve some of the TSO's workload.

Suggestions include:

- Tackle the gap in information between the data freeze date and the TDP publication by establishing a live register of grid development projects to be published and updated on EirGrid website similar to the quarterly ATR updates.
- Provide more information on projects timelines, planned milestones dates for projects progressing through each stage of EirGrid's Framework for Grid Development rather than and overall Estimation Completion Date (ECD).
- Provide more information related to the rating that a reinforcement is being developed to, and the constraint area where the reinforcement will alleviate constraints.
- A more detailed explanation of why a candidate solution identified in SOEF or a need identified in TESNA has not been included in the TDP.
- Respondents are seeking clarity on EirGrid's decision-making process for grid projects, in term of what metrics and factors are used. It has also been requested that more transparency is required

¹⁰ <https://www.eirgridgroup.com/about/innovation-and-research/2021-Innovation-Report.pdf#page=19&zoom=100.92.96>

¹¹ <https://www.eirgridgroup.com/how-the-grid-works/innovation/enhanced-user-facilitatio/>

around the risk to projects and mitigation plans, arguing that the risks are assumed by generators when transmission infrastructure delays occur.

- It has been suggested that information related to the budget figures for individual capital projects should be made public, arguing that this would allow for outturn comparisons upon project completion.

2.2.4.2 *Our response*

The TDP seeks to standardise the reporting of projects into defined categories. These are described in further detail in Section 4 (Planned Network). Information is provided for each project including project drivers and needs.

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.

EirGrid is committed to developing its reporting across all its major transmission network Capex project and programme publications. The CRU PR5 Reporting and Incentives paper (CRU/20/154) section 3 "reporting and monitoring" establishes an enhanced reporting framework for PR5. EirGrid is engaging with the CRU on the enhanced reporting framework. We are actively looking at ways in which we can incorporate stakeholder feedback as part of our commitment to continuous improvement and enhancements to our existing reporting.

It is anticipated that this enhanced reporting will provide additional information on key projects timelines and planned milestones dates for projects progressing through each stage of EirGrid's Framework for Grid Development. EirGrid also develops, engages and consults on all of our projects in accordance with our Framework for Grid Development – a rigorous approach to planning, design, consents, construction and energisation for each project, all underpinned by substantive public and stakeholder engagement. The CRU also publishes the annual performance report and investment planning and delivery report each year.

Details of the physical and electrical characteristics of future transmission plants or changes to the characteristics brought about by planned development, such as the rating of a reinforcement being developed, are listed in Appendix B of the Ten Year Transmission Forecast Statement¹².

Regarding the decision-making process, as commented above, needs identified in the TES System Needs Assessment and candidate solutions reported in SOEF must be examined in more detail through the EirGrid's Framework for Grid Development as described in Appendix B of the TDP. More information of the EirGrid's processes to develop the grid can be found on the website¹³.

EirGrid as a regulated utility provides project budgetary information on all projects to the CRU in advance of allowances being provided for each price review. It is not our intention to provide this information in the TDP. EirGrid notes that the TSO and TAO received regulatory approval from the CRU in Price Review 5 (PR5) based on our assessment of the requirements needed to develop and reinforce the network to meet our 2030 obligations while maintaining security of supply. The determination and outcome of the PR5 process was based on a robust review of the required projects during which the TSO and TAO were required to demonstrate that the capital projects were sufficient

¹² <https://www.eirgridgroup.com/site-files/library/EirGrid/All-Island-Ten-Year-Transmission-Forecast-Statement-2020.pdf>

¹³ <https://www.eirgridgroup.com/uuid/7d658280-91a2-4dbb-b438-ef005a857761/EirGrid-Have-Your-Say-May-2017.pdf>

to meet our obligations. The regulatory framework also includes annual independent assessments of the scorecard and incentives and regular progress reporting on the programme and key projects.

The full assessment report by the CRU is available on the Commission's website¹⁴. EirGrid also reports annually with the TAO on regulatory spend on transmission capital projects in the annual Investment Planning and Delivery Report which is published on our website¹⁵.

2.2.5 Dispatch down and constraints

2.2.5.1 Comments received

Some of the respondents raised a concern mentioning that constraint and curtailment levels continue to be an issue for renewable generators and suggest developing an effective management plan to minimise dispatch down in order to remove this risk for the renewable units.

It has also been mentioned that most of the operational constraints due to network operability do not seem to be addressed in the TDP, being difficult to establish which projects would address these constraints.

2.2.5.2 Our response

The integration of large amounts of non-synchronous variable renewable energy sources poses challenges for the transmission system. Our approach to facilitating renewables and reducing constraints includes:

- The operational roadmap of SOEF;
- Investing in the transmission system and interconnection; and
- Researching, developing and adopting innovative solutions and technologies.

Network reinforcements described in TDPs are vital element to facilitating renewables and reducing constraints.

Dispatch down and constraints are an area of continuing focus for EirGrid and SONI, and dispatch-down is minimised by the control centres while also managing system issues, forced outages, and the many other challenges that occur every day. The issues that can crop up in an operational time frame cannot be reasonably studied by planners, who are designing the network up to 10 years in advance of those new developments becoming operational.

Information on potential future constraints across a range of scenarios for generators that received offers under the Enduring Connection Policy Stage 1(ECP-1) process is available on the EirGrid website¹⁶. These reports were created to fulfil the requirement of CRU's ECP-1 decision, CRU/18/058¹⁷, that system operators carry out system studies to inform generators about possible constraint levels. As set out in CRU/20/060¹⁸ this is also required for ECP-2.1 and the regional

¹⁴ https://www.cru.ie/document_group/price-review-5-electricity-networks/

¹⁵ <http://www.eirgridgroup.com/how-the-grid-works/tso-regulatory-publicatio/>

¹⁶ <http://www.eirgridgroup.com/customer-and-industry/general-customer-information/ecp-2.1-constraint-report-1/>

¹⁷ <https://www.cru.ie/cru18058-ecp-1-decision-final-27-03-2018/>

¹⁸ <https://www.cru.ie/wp-content/uploads/2020/06/CRU20060-ECP-2-Decision.pdf>

constraint reports were completed and published by the TSO September 2021¹⁹. Currently, EirGrid is drafting the Enduring Connection Policy which will be published in Autumn 2022.

The CRU published its PR5 Decision in December 2020²⁰. In addition to providing the forecast revenues for EirGrid and ESB Networks for the physical development of the transmission system, the CRU has under its PR5 Regulatory Framework, Incentives and Reporting paper placed a key focus on constraints over the coming years²¹.

This framework includes the introduction of new incentives and reports on the TSO related to 'Renewable Dispatch Down' and an Ireland-only incentive on 'Imperfections & Constraints' and a 'Joint TSO/DSO Co-ordination' incentive which includes a focus on Dispatch Down and Curtailment in recognition of the potential greater role for the DSO in managing dispatch down as the power system evolves. The outputs of these incentives alongside other activities will form part of the Annual Performance Report as published by EirGrid.

2.2.6 Project data

2.2.6.1 Comments received

One of the respondents has suggested an interim solution to provision of up to date information in the absence of an online register to ensure that the existing individual project web pages on the EirGrid website are kept up to date and include more information on what is happening on a project now, along with information on what is scheduled to happen next.

It has also been suggested a more aligned / joined up approach needs to exist between results of SOEF, constraints analysis and other publications by EirGrid to feed into a more cohesive TDP.

2.2.6.2 Our response

Transmission network development is continuously evolving. To help with 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.

We acknowledge the need to improve the way data is communicated and published.

Regarding the request for more up to date data via an online portal, EirGrid has listened to feedback from stakeholders in relation to updates for projects, and we are planning to provide enhanced reporting by the end of 2022. The enhanced reporting will include details of all capitally-approved projects being progressed through the EirGrid's Framework for Grid Development. These enhanced reports will provide additional information including:

- Estimated project energisation years;
- Changes to the project since the previous quarterly update; and
- Comments on relevant projects, for example information on project risks.

We anticipate that this information will be updated on quarterly basis.

¹⁹ [https://www.eirgridgroup.com/site-files/library/EirGrid/2020-Batch-\(ECP-2.1\)-Results-Joint-SO-Publication_September-2021.pdf](https://www.eirgridgroup.com/site-files/library/EirGrid/2020-Batch-(ECP-2.1)-Results-Joint-SO-Publication_September-2021.pdf)

²⁰ https://www.cru.ie/document_group/price-review-5-electricity-networks/

²¹ <https://www.cru.ie/wp-content/uploads/2020/12/CRU20154-PR5-Regulatory-Framework-Incentives-and-Reporting-1.pdf>

Additionally, we are looking into ways to make the website more user-friendly while still providing the most up to date information possible. As part of our planned upgrades to the website, the search functionality is a key priority.

As mentioned in previous section of this document, any needs or candidate solutions identified as part of our analyses results are always considered and evaluated in our Framework for Grid Development. Once any of those need or solutions progress through the Framework and an investment decision is approved, the project can be listed in the TDP.

2.3 Consultation questions

2.3.1 Question 1

Does the content and format of the document adequately reflect the intent and purpose of the TDP as set out in legislation?

2.3.1.1 Comments received

All respondents agreed in their answers, arguing that the TDP does not adequately reflects or provide relevant information on all ongoing or planned projects.

The reasons they have given are set out below:

- TDP does not seem to reflect the intent of the legislation Directive (EU) 2019/944 common rules for the internal market for electricity.
- TDP does not have a data freeze closer to publication date. The data freeze date and subsequent gap in TDP publication is an issue as often it is out of date by the time it is published.
- Bring forward the timelines for issuing development plans closer to its representative years e.g. 2022 – 2031 development plan should be issued within H1 2023.
- More up to date information on grid development to reflects that the TDP takes into account the existing and planned generation, transmission distribution and supply.
- Needs identified in TESNA 2019 and candidate reinforcement in SOEF 2030 Roadmap have not been included.
- It does not adequately address the reinforcement needs of the system or provide relevant information on all ongoing or planned projects.
- One of the respondents does not consider that there is sufficient consideration of the use of demand response, energy storage facilities or other opportunities in the draft TDP.
- Add further clarity on projects described in Chapter 5. It has been suggested adding categories which can offer the reader further insight. Such categories might include, developer led, TSO led, DSO led projects. Developer led projects may or may not proceed in accordance with forecast timelines, however, TSO and DSO led projects which are within the control of EirGrid and ESB should have baseline delivery dates and provide commentary on which of the EirGrid's Framework for Grid Development steps the project is currently within.

2.3.1.2 Our response

EirGrid has a licence obligation to produce a TDP annually, one of the requirements is to reflect the Article 51 of Directive (EU) 2019/944²²: *“Member States should encourage the modernisation of distribution networks, such as through the introduction of smart grids, which should be built in a way that encourages decentralised generation and energy efficiency.”*

As mentioned in Section 2.2.3, EirGrid is committed to developing innovative ways to operate and plan the network. While ensuring the security of supply, as TSO, we would encourage the modernisation of the grid. Innovation and research are key enablers to deliver our Strategy 2020-2025.

In addition, the Climate Action Plan (CAP) 2021 has introduced a Microgeneration Support Scheme (MSS) which supports deployment of an expected 260 MW of new micro (<50 kW) renewable generation by 2030, including an export payment for all micro- and small-scale generator that reflects the market value of the electricity to the grid, society and the environment.

On the public engagement feedback of SOEF communities have expressed their interested to get involved in microgeneration and believe microgeneration should have a relatively significant role in attaining renewables targets. As our response EirGrid has increased its modelling assumptions of micro-generation capacity from 100 MW to 500 MW by 2030 and also will explore the introduction of a 4th Strand of Community Funding specifically for microgeneration to support landowners and communities in transitioning to a cleaner greener energy future.

We believe that our alignment with the CAP 2021 in addition with inclusion of microgeneration and new technologies, such as energy efficiency and smart charging for electric vehicles, in our modelling assumptions outlined in SOEF, express EirGrid compliance with the Article 51 of Directive (EU) 2019/944.

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. The freeze date aligns with the freeze date for other documents and processes. It is our objective to produce TDPs within the year in question and reducing the gap between the data freeze date and the TDP publication. We are targeting bringing forward the timelines for issuing development plans closer to its representative years.

As mentioned in Section 2.2.1, all needs and candidate solutions identified as part of the most recent Tomorrow’s Energy Scenarios System Needs Assessment (TESNA) and SOEF, respectively, have to enter EirGrid’s Framework for Grid Development process and when an optimal solution is found, the development receive investment approval to become a project that will then be reported in the TDP.

One of main objectives of the projects listed on the TDP is to address the reinforcement needs of the system to allocate new RES and meet the targets for 2030, providing information on all projects which received investment approvals. Energy storage facilities or other technologies will be reported in future version of the TDP as they will be progressing through the framework for our Framework for Grid Development.

²² <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019L0944&from=EN>

2.3.2 Question 2

Section 2 of the TDP 2021-2030 describes investment drivers and system needs. Does the document outline sufficient actions to address the drivers and needs presented? If not, please highlight the specific areas where additional actions may be required.

2.3.2.1 Comments received

Respondents do not believe that the document outlines sufficient actions to address the drivers and needs.

Specific areas where respondents have suggested further actions are highlighted below:

- The level of change behind the drivers for investment do not fully incorporate the known drivers of changes expected by participants and investors.
- The development plan should account for extending and reinforcing the network and plan accordingly such that new RES can be accommodated without significant constraints imposed on projects.
- Most of the projects in the TDP are for addressing the needs of the short term and not necessarily for addressing the need up to 2030.
- It is not clear how the need identified in TESNA 2019 and candidate solutions reported in SOEF Roadmap are progressed into projects and how these projects are then progressed through the early steps of EirGrid's Framework for Grid Developments.
- Lack of consideration for connections relating to the results of the 2024/25 T-3 and 2025/26 T-4 capacity auctions are not included.

2.3.2.2 Our response

The TDP is being developed to support Government's objectives related to setting Ireland's energy future by enabling the transition to a low carbon energy future.

As described in the TDP, the drivers that guide investment in the Irish transmission network take direction from a number of broad national and European²³ strategic objectives. The projects listed in the TDP take into account policy and technical drivers for transmission network investments as follow:

- Policy drivers: security of transmission network, market integration and renewable.
- Technical drivers: changes in demand, generation and interconnection, changes in inter-regional power flows, and changes in asset condition.

By considering the drivers listed above, described in Chapter 2 of the TDP and shown in the tables of Chapter 5, we believe that we incorporate the drivers for the planned changes, taking into account network expansion and reinforcement to accommodate new RES and demand growth. It is important to mention that EirGrid is working to address both short-term and long-term system needs while ensuring security of supply.

The results of the 2024/25 T-3 and 2025/26 T-4 capacity auctions were published earlier this year. The outcomes of these capacity auctions are subject to planning development and connection agreements and will be published in future TDPs once they are progressed in our Framework for Grid Development.

²³ https://energy.ec.europa.eu/topics/energy-strategy/clean-energy-all-europeans-package_en

2.3.3 Question 3

The North-West (Section 3.2) has for some time been identified as being an area where there is particular difficulty with network development. Does the TDP 2021-2030 adequately detail the plan to now resolve it?

2.3.3.1 Comments received

Respondents do not agree that the TDP adequately details the plan to resolve the situation in the North-West.

The following comments have been made on this matter:

- TDP does not provide adequate detail on a plan to resolve network issues in the North-West .
- Concern around cancellation of CP0800 and no further explanation on which projects will be covering the needs that CP0800 was going to address.
- In this area and for the rest of areas covered in the document, the TDP does not provide developers and/or investors with enough detail to understand how EirGrid will deliver on mitigating grid issues.
- No clearance in the scope to address the needs in the region.
- Not inclusion of needs and candidate solutions reported in TESNA and SOEF. It is not clear how these needs and candidate solutions are going to be progressed
- The number of candidate solutions from SOEF considered in ECP 2.1 are not sufficient to address the needs in the area.
- Data freeze date should be as close to publication as possible.

2.3.3.2 Our response

As expressed in Section 2.2.2, EirGrid is working to develop the network in the North-West and future version of the TDP will provide new project details on a plan to resolve the issues in the area.

The CP0800 North-West Project was cancelled as part of the re-evaluation and subsequent cancellation of the RIDP project where new considerations have been assessed to include additional technologies, and to include investigation of connection to a number of substations in Donegal. The need for new network development in the region remains so that a new project addressing this need will be reported in the next version of the TDP.

As described in Section 2.2.1, the inclusion of needs and candidate solutions in TESNA and SOEF will be reported as developments progress in the EirGrid's Framework for Grid Development. It is important to mention that the network in the North-West will be upgraded and the solutions proposed will address the issues. The number of candidate solutions from SOEF considered in ECP reports will change and/or increase in future versions of the documents as network developments progress and issues are addressed.

At EirGrid we are reviewing our internal processes to reduce this gap between the data freeze date and the publication of the TDP. We are working so that the publication of this TDP can be earlier than the previous version of the document.

2.3.4 Question 4

Would it be helpful to link projects to the specific challenge they are addressing? Examples of this would include the North-West project as identified in the Renewable Integration Development Project and the Dublin Security of Supply constraint as set out in CRU paper CRU/18/228 dated 05 October 2020. If yes, would it be helpful to include the date and source of that challenge identification, and the timeline for addressing that challenge along with the associated project(s) completion date(s)?

2.3.4.1 Comments received

All respondents consider that it will be useful to link projects to the specific challenge they are addressing, by:

- Centralising a TDP projects list, including the rating that the reinforcements is being developed and also the constraint area that the reinforcement is located in.
- Reporting timelines for each step of the framework.
- Indicating milestones dates for projects to be tracked against a baseline.
- Explaining why a project is not in the TDP and when will be included.
- Linking projects to the challenge and the impact for consumer at least.

2.3.4.2 Our response

We thank the respondents for their suggestions and comments. EirGrid is considering ways to give developers and other interested parties more timely information on how projects are progressing. Some ideas include issuing regular reports from the Programme Management Office on project delivery, keeping the website project pages up to date with relevant information, as well as adding more information to the TDP. We are happy to include more information in the TDP provided it is accurate and readily accessible and doesn't add significantly to the TDP timeline and workload, as we also acknowledge that some parties would prefer the TDP to be published in a more timely fashion after the data freeze.

2.3.5 Question 5

The TDP currently provides general and non-project specific reasons for changes in project status e.g., from Active to On Hold or Removed. Is there a benefit to the transmission system development in providing project specific reasons for these changes, with an exception where there is a commercial sensitivity? If yes, please specify the benefits.

2.3.5.1 Comments received

Respondents would agree and support the inclusion of commentary on the status of the projects and rational for change, appreciating the benefit on this to have more confidence in the TSOs decision making and an understanding that there are good reasons for the decisions made. As general comment they would like to know:

- Reason of why a project status change, any delay should be explained.
- Projects within the TSO/DSO's control who move from active to on hold or removed, projects are created with intent and their change in status with details would add clarity.

2.3.5.2 Our response

We thank the respondents for their suggestions. Projects can be delayed or changed for a myriad of reasons, many of which may be outside of EirGrid's control, including difficulties with land access, environmental restrictions, as well as technical reasons around giving outages that impact security of supply or which breach Operational Security Standards. Often, outages have to be performed sequentially in a particular area, and thus a delay to one outage can have significant knock-on impacts to other projects, delaying projects by months or years. Nevertheless, we are happy to include more detailed reasons on project changes in future TDP reports if they are available, noting that ultimately the asset owner carries out the actual work on the system.

2.3.6 Question 6

Are there any current network constraints that are not included in the TDP and will not be resolved by the successful completion of projects set out in the TDP 2021-2030?

2.3.6.1 Comments received

Respondents have replied that there are many network constraints that are not included considering the information reported by TESNA, SOEF and ECP 2.1 studies.

Most of the operational constraints due to network operability do not seem to be addressed in the TDP, such as:

- Constraint in Dublin region. A respondent has commented that they cannot establish projects within the TDP that would address this constraint as no network upgrade projects between the Poolbeg, Dublin Bay and Huntstown units are identifiable. They have asked for more insight on the reasoning behind this.
- The existing constraints on exporting power to the north and east from the Cork area. It has been commented that these constraints on exporting power from the Cork area will likely be exacerbated by the scheduled connection of the Celtic interconnector to the Knockraha station in Cork which undermines the benefits of connecting Celtic and the necessary grid planning and improvements required for this area therefore need to be urgently addressed.
- Constraints in the Midlands region; network power flows, current generation and future build out within the region, are likely to see high levels of networks constraints.
- The responded argued that there is still a higher level of constraints in the North West than elsewhere on the grid so it has been commented that future TDPs may also fall short when it comes to grid development in the region.

2.3.6.2 Our response

At EirGrid, we are making the grid ready to carry up to 80% of Ireland's electricity from renewable sources by 2030, as set out in the Government's Climate Action Plan. We acknowledge that EirGrid needs to add more energy from renewable sources and the network will need to carry more power to be carried over longer distances.

Several of the candidate solutions presented in the Shaping Our Electricity Future Roadmap report cover the areas mentioned; Dublin, Cork, and the Midlands. These solutions are being assessed by EirGrid with the aim of identifying the optimal solution in each case and progressing it through our Framework for Grid Development. It is expected that a number of these candidate solutions will receive investment approval and thus will be reported on in future versions of the TDP.

It should also be noted that some system constraints are not necessarily to do with the network. For example, there are must-run units in Dublin for voltage control. There is also a minimum-set rule that serves to ensure the system has enough inertia to maintain a steady frequency. These higher-level issues are addressed through Eirgrid projects, such as the DS3 project and the SOEF project. The cable network in Dublin will need to be upgraded to accommodate offshore wind along the East Coast, and to replace the old oil-filled cables that have been in place for several decades. If projects are not listed in the TDP, that means that they may have not yet received an investment approval at the time of writing.

2.3.7 Question 7

Does this paper raise any concerns around delivery capability considering the challenges ahead? CRU notes that there are 145 live projects in the 2021 report and at the time of the freeze date, 15 were completed and 43 due were scheduled for completion in 2021. 30 are scheduled for completion in 2022. Comparing this to previous reports, the 2020 report showed 11 projects completed in the previous year, the 2019 showed 23 projects completed, and the 2018 report had 26 projects completed.

2.3.7.1 Comments received

There are concerns about EirGrid's delivery capacity. On this issue, respondents replied as follows:

- The time it is taking EirGrid and ESBN to deliver new circuit projects with many projects progressing slowly or in the case of the North-East, not progressing at all, suggests an issue in the future development of the network.
- ECDs for projects as set in previous TDPs are being extended in the current TDP raising the concern that projects will be constantly delayed.
- The growth in project numbers expected from SOEF candidate reinforcements, new generation connections, and predicted growth in offshore wind connections which have not been sufficiently considered in this TDP further raises concerns around the realistic achievement of ECDs. It has been commented that it is essential that EirGrid develops its delivery capabilities so delays will be minimised.
- A respondent has suggested on further categorisation such that the reader can understand which projects are developer-led, TSO-led, or DSO-led.
- It has also been suggested that management boards should be set up for each of the six regions identified in the TES 2019 System Needs Assessment report to address the needs of each of these regions.

2.3.7.2 Our response

EirGrid must make the electricity grid stronger and more flexible so that it can carry lots more renewable generation. The grid will also need to carry much more power to respond to increasing demand from the electrification of heat and transport, and high-volume business use. Additional network infrastructure must be built to achieve the Renewable Ambition and we have identified a significant number of required network reinforcement projects to allow us to have a modernised grid capable of supporting the Renewable Ambition.

Planning, delivery and sequencing of electricity transmission infrastructure is very complex as it involves incorporating multiple interacting projects, where prioritisation decisions may be required.

The objective of the transmission outage planning process is to maximise the amount of outage related work that can take place to reinforce the system, connect customers and ensure the required level of maintenance of the transmission system while ensuring a safe and secure system. This process must be completed in accordance with the Operating Security Standards (OSS). All our works are scheduled on the basis that the OSS are not breached for any outage or combination of outages.

Further categorization regarding which projects are developer led, TSO led, or DSO led have been added in tables of Chapter 5. Please refer to next section for more details.

As mentioned in the previous sections, at EirGrid we have our internal processes for reviewing and progressing needs and candidates solutions. Importantly, to help project reporting and give a regional view to our TDP we group counties together creating regions, but in our power system studies the generation portfolio is modelled against the demand forecast, carrying out separately for Ireland and Northern Ireland, on a jointly on an All-Island bases.

2.3.8 Question 8

CRU is proposing that the document should include a link to the related PR5 submission from EirGrid. This could constitute information on how many projects are on schedule, or ahead of schedule, relative to that submission. Would respondents consider this link helpful, and if so, is there related information that should also be considered?

2.3.8.1 Comments received

All of the respondents agreed that this information would be useful as it would provide a most useful metric of project progress.

It has been commenting that all sources of project updates should be considered including those projects submitted to obtain funding allocation under PR5.

Respondents want to see the status of projects against schedule and budget, one of them has commented that if euro amounts cannot be provided, then percentage spend to date versus target amounts would be useful to track progress. They have also commented that any variance in schedule or budget should be explained by EirGrid so that causation can be established and similar risks to other grid development projects can be isolated and mitigated against to ensure the timely value delivery of grid development projects for participants and consumers who will ultimately cover the costs involved

2.3.8.2 Our response

EirGrid is committed to developing its reporting across all of its major transmission network Capex project and programme publications. The CRU PR5 Reporting and Incentives paper (CRU/20/154) Section 3 "reporting and monitoring" establishes an enhanced reporting framework for PR5. EirGrid is engaging with the CRU on the enhanced reporting framework. Please refer to our response in Section 2.2.4 above.

Appendix A: Stakeholders responses

Eileen Deegan,
Electricity Networks Division,
Commission for Regulation of Utilities,
The Grain House,
The Exchange,
Belgard Square North,
Tallaght, Dublin 24,
D24PXWO

By e-mail to: edeegan@cru.ie

Date: 19th April 2022

Re: FuturEnergy Ireland Submission to CRU Consultation on EirGrid's Draft Transmission Development Plan (TDP) 2021 – 2030

Dear Eileen,

Prior to setting out our response to this consultation we wish to note to the Commission for Regulation of Utilities (CRU) that the Coillte Renewable Energy business unit transitioned at the end of 2021 to FuturEnergy Ireland, a new stand-alone joint venture company in conjunction with ESB.

FuturEnergy Ireland recognises the Government's ambition set out in the Climate Action Plan and seeks to contribute up to 1 GW of new onshore wind capacity in Ireland in the period up to 2030. By leveraging a unique land bank which presents an unmatched portfolio of large high wind sites, this target can be achieved.

FuturEnergy Ireland welcomes this consultation and believes that a key component of achieving policy targets is a strong electricity grid with sufficient capacity to cater for future demand requirements and the renewable energy project pipeline.

We have set out a number of comments below on the CRU Consultation on EirGrid's Draft Transmission Development Plan (TDP) 2021 – 2030 and we have also included an appendix to this submission with responses to the specific queries raised by CRU in the consultation:

1. Support Climate Action Plan RES-E and Installed Capacity Targets by 2030.

Future iterations of the EirGrid Transmission Development Plan (TDP) should take account of the Climate Action Plan (CAP) including the requirement that Ireland generates at least 80% of its electricity from renewable sources by 2030. The timely development of the transmission system is likely to be a key enabler in facilitating an 80% RES-E target. The CAP outlines capacities of 8 GW of onshore wind, 5 GW of offshore wind and 1.5 – 2.5 GW of solar. However, this is unlikely to be achieved without parallel development of the transmission system to accommodate these renewable volumes.

2. Identify and Develop New Circuits

There are areas of Ireland's transmission system that require new transmission circuits above those currently listed in this draft TDP. Examples of these areas include regions in North Mayo, Donegal and parts of the Midlands as evident in EirGrid's Tomorrow's Energy Scenarios System Needs Assessment (TESNA) 2019 and the more recent Shaping Our Electricity Future (SOEF) 2030 Roadmap, and this is backed up by the latest WEI wind energy pipeline, however the draft TDP only contains projects which cater for existing generation, mainly from Gate 3, and a number of these grid projects have been delayed or have regressed. For example, Renewable Integration Development Project (RIDP) was in Step 2 in the TDP 2018-2027, regressed to Step 1 in the 2019 – 2028 TDP and has been removed in this TDP with no replacement identified to meet the remaining need.

Even with a data freeze of January 2021, the draft TDP should include more projects to cater for the regional needs identified in the EirGrid TESNA 2019 and more of the solutions identified in the SOEF Roadmap. WEI continue to provide EirGrid with information on the wind energy pipeline which reaffirms the needs for grid development in the areas outlined above.

FuturEnergy Ireland believes that transmission projects for these areas should be progressed into development in parallel with the WEI wind energy pipeline and into future TDPs and SOEF roadmaps rather than waiting for generators to sign connection offers and become 'contracted' if Ireland is to meet its renewable energy targets. Projects need to enter and progress more quickly through the six-step Grid Development Framework. Preferred options and solutions for new circuits need to be identified and progressed earlier, particularly where cable is to be used, so that their consenting and delivery timelines can be confirmed and expedited to ensure that RES-E and Installed Capacity targets are met for 2030 (and beyond) at best overall cost to the consumer by enabling more competition with a continuing pipeline of shovel ready projects and ensuring that a strong and robust grid network is developed.

3. Need For More Detailed and Up to Date Information

FuturEnergy Ireland acknowledges that the production of the TDP is a statutory requirement and a condition of EirGrid's TSO licence, but we would like to stress the need for more up to date information on grid development which would be of more benefit to industry and would alleviate some of the workload on the TSO. We have outlined a number of suggestions on this below:

- i. The data freeze date and subsequent gap in information in the TDP publication is an issue which results in information often being out of date and of little benefit. The freeze date of 1st January 2021 for this TDP means that more up to date information such as the reinforcement from EirGrid's SOEF Roadmap are not fully taken into account. FuturEnergy Ireland believes it would be more beneficial for EirGrid to establish a live register of grid development projects which could be published and kept up to date on the EirGrid website similar to what is done for quarterly ATR updates, albeit with more detailed information as outlined below.

- ii. More detailed information should be provided on project timelines, for example planned milestone dates for projects progressing through each stage of the six-step development framework rather than one overall estimated delivery date. It is unclear how projects are progressed through the framework, particularly in the early stages, and more detailed information would allow for better tracking of project progress. It is also often unclear what weighting or importance is placed on each of the criteria in multicriteria decision matrix that EirGrid uses for projects when identifying preferred options. Some new circuit projects such as the Kildare Meath 400kV project seem to have progressed relatively quickly while others, such as a number of Gate 3 ATR line upgrades referenced above appear to be taking much longer or have stalled even though they are to be progressed for Gate 3 generation. We would also like further programme information on how the projects identified in the SOEF Roadmap are to progress through EirGrid's Grid Development Framework.
- iii. We recommend that more information is provided on project progress against the framework steps i.e. if a project hasn't progressed as anticipated then the reasons why should be outlined. There are often limited updates on projects if they are not ATRs as they don't appear on the Quarterly ATR updates from EirGrid.
- iv. An interim solution to provision of up to date information in the absence of an online register may be to ensure that the existing individual project web pages on the EirGrid website are kept up to date and include more information on what is happening on a project now, along with information on what is scheduled to happen next.

4. Leverage The Existing Transmission System and Use of New Technology

EirGrid has a proven capacity to be a leader in system integration of renewables through its work on the DS3 program, allowing levels of curtailment to be managed at world leading renewable penetration levels. 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 in some parts of the network in the short term, the requirement for ongoing investment in new circuits remains to cater for the pipeline of projects referenced in EirGrid's TESNA 2019, and from WEI analysis. EirGrid's SOEF Roadmap also outlined a number of solutions from the Technology Led approach that could be rapidly deployed. Solutions such as dynamic line ratings and power flow control should be used more widely and fast-tracked to provide capacity while line upgrades and new circuits are being delivered.

5. Future Proofing and Substation Extensibility

EirGrid should also consider future proofing new circuits so that maximum use of new circuit route corridors is made and so that new circuits can be voltage upgraded

with minimal effort or impact to the environment and local communities if required. For example new 110kV cables could be constructed to a 220kV standard and operated at 110kV without major changes to their construction footprint. A voltage uprate to 220kV could be accommodated in future if needed with minimal substation upgrades. This would also make it easier for the grid to 'flex' to accommodate any upward revision to 2030 targets in the next few years while also allowing for a better starting point for 2050 targets. It may also mean that EirGrid could defer having to go back to local communities to install additional circuits in future.

Gas insulated switchgear (GIS) stations are not readily extendable. Whatever is built is often seen by the System Operators as a final solution and it is not possible to add new bays. EirGrid should use the WEI wind energy pipeline when planning new 220kV or 400kV GIS stations so that they can be laid out to allow for a high RES-E system with sufficient bays on 110kV busbars to accommodate existing circuits, existing and future station inter-bus transformers, reactive power equipment, power quality equipment and new generator, battery or line/cable bays. In existing GIS stations even 8 bay GIS 110kV busbar arrangements can fill up relatively quickly and with no space in many GIS buildings, new stations have to be built to accommodate even one additional connection. This is in contrast to air insulated switchgear (AIS) stations in which new bays can be added more easily, often just by extending the existing busbar. Often GIS is used despite the additional cost to reduce station footprint size and gain social acceptance, but this would be negated if the GIS stations aren't planned correctly as multiple stations may be required due to a lack of extendibility.

We would be very happy to engage with you further on any matter set out herein relating to this important consultation.

Yours sincerely,

[no signature as e-version only]

Ciarán McNamara

Grid Manager

FuturEnergy Ireland

Appendix: Responses to Consultation Questions

Q1. Does the content and format of the document adequately reflect the intent and purpose of the TDP as set out in legislation?

Response: The TDP does not give enough information and often it is over a year out of date by the time it is published. Needs that have been identified in TESNA 2019 are left unaddressed and candidate reinforcements identified in SOEF 2030 Roadmap at the end of last year have not been included so the document falls short of the requirement to identify the main transmission infrastructure that needs to be built over the next ten years and it is inconsistent with the requirements of the Climate Action Plan. In addition to this EirGrid are currently working on an update to SOEF to reflect the updated targets of 80% RES-E by 2030 as set by the department, it is critical that the reinforcement works identified by the updated SOEF analysis by EirGrid are fast tracked to ensure 2030 targets are achieved. At the recent WEI annual conference TNEI presented on some work commissioned by WEI that is being completed by Baringa and TNEI to identify areas of the network that should be considered to bridge the gap between '70by30' and '80by30' targets, the results of this analysis should be considered by EirGrid in their SOEF review and has the potential to assist EirGrid in delivering the SOEF update earlier than the end of the year.

Q2. Section 2 of the TDP 2021-2030 describes investment drivers and system needs. Does the document outline sufficient actions to address the drivers and needs presented? If not, please highlight the specific areas where additional actions may be required.

Response: It is not clear how the needs are progressed into projects and how these projects are then progressed through the early steps of EirGrid's Grid Development Framework. It is also not clear why some needs identified in TESNA 2019 are being progressed and turned into projects, while others are not. For example, needs identified in the Dublin region appear to be expedited into projects which are launched and put through the early steps very quickly, while needs and projects in the North West (e.g. Coolkeeragh-Trillick New 110kV circuit and RIDP) have stalled or been cancelled.

Q3. The North-West (section 3.2) has, for some time been identified as being an area where there is particular difficulty with network development. Does the TDP 2021-2030 adequately detail the plan to now resolve it?

Response: No. There is no clear plan or project scope in the TDP to address all of the needs identified by EirGrid in the North West.

Transmission Infrastructure development in the North-West has regressed in the last few TDPs. The TDP clearly states that The North West Project (CP0800) (formerly RIDP), a Gate 3 ATR that has not progressed beyond Step 2 in 10 years, has been removed while stating that the need for new grid reinforcements remains. However, it still appears in EirGrid's Q4

2021 ATR update that was published at the end of January 2022. Coolkeeragh – Trillick new 110kV circuit was also removed with little explanation.

Candidate reinforcements identified for the North-West in the SOEF Roadmap should be included in the final version of the TDP 2021-2030 if the SOEF Roadmap is to have its best chance of being delivered by 2030. It is not clear how these candidate reinforcements are going to be progressed. For example, a new Clogher - Srananagh 220 kV circuit is identified in SOEF but it is not clear why it is not being progressed through the Grid Development Framework with the same urgency as the Kildare - Meath 400kV upgrade.

EirGrid ECP 2.1 constraint reports include many of the candidate reinforcements from SOEF but there is still a higher level of constraints in the North West than elsewhere on the grid so it is worth noting that as things stand future TDPs may continue to fall short when it comes to grid development in the North West.

Q4. Would it be helpful to link projects to the specific challenge they are addressing? Examples of this would include the North-West project as identified in the Renewable Integration Development Project and the Dublin Security of Supply constraint as set out in CRU paper CRU/18/228 dated 05 October 2020. If yes, would it be helpful to include the date and source of that challenge identification, and the timeline for addressing that challenge along with the associated project(s) completion date(s)?

Response: Yes, it would be helpful to include that information. It can give a truer indication of when a project need was confirmed or when it enters step 1 of the grid development framework. Usually the only way of identifying this is from noting when it first appears in a TESNA report and then when it appears in its first TDP. It would also be helpful to include indicative timelines for each step the project will take through EirGrid's Grid Development Framework, along with the key indicative milestone dates for the project so progress can be tracked against a baseline.

It would be very beneficial if EirGrid made available a database / spreadsheet where TDP projects are listed as is currently contained within TDP documents, with the rating that the reinforcements is being developed to and also the constraint area that the reinforcement is located in. There should also be a column to identify if the project is included in most recent of each of (i) ATR list, (ii) constraints report, (iii) SOEF analysis, (iv) forecast statement. It would also be beneficial if some commentary on any projects that are included in the above four publications but not in the TDP, outlining why they aren't included and when they will be considered for inclusion.

Q5. The TDP currently provides general and non-project specific reasons for changes in project status e.g., from Active to On Hold or Removed. Is there a benefit to the transmission system development in providing project specific reasons for these changes, with an exception where there is a commercial sensitivity? If yes, please specify the benefits.

Response: Yes, it would be beneficial in the interest of transparency to see the reasons why a project's status can change. Often developers are progressing projects in anticipation of grid being delivered in a region. If something occurs that changes this assumption developers need to be informed to see how it impacts their projects. The information may

allow them to more accurately price in risk of grid delivery into the commercial considerations for their project which could lead to more competitive RESS auction bids for projects to the benefit of the consumer, rather than having to make 'worst case' assumptions in the absence of information.

Q6. Are there any current network constraints that are not included in the TDP and will not be resolved by the successful completion of projects set out in the TDP 2021-2030?

Response: Yes, there are many outside the Dublin region which have not been included, this is shown in EirGrid's own TESNA, ECP 2.1 constraints studies and SOEF studies. The North West in particular shows areas of high constraints relative to the rest of the grid. The level of these constraints will have to be reconfirmed following the SEM-C decision on implementation of Articles 12 and 13 from the Clean Energy Package. In general there is a disconnect between the different analysis and publications by EirGrid. We request that more aligned / joined up thinking should exist between results of SOEF, constraints analysis and that this should all be used to develop the TDP.

Q7. Does this paper raise any concerns around delivery capability considering the challenges ahead? CRU notes that there are 145 live projects in the 2021 report and at the time of the freeze date, 15 were completed and 43 due were scheduled for completion in 2021. 30 are scheduled for completion in 2022. Comparing this to previous reports, the 2020 report showed 11 projects completed in the previous year, the 2019 showed 23 projects completed, and the 2018 report had 26 projects completed

Response: Many of the new circuit and station projects that are completed are ones delivered by IPP developers as part of their grid connection works or are smaller line diversion or station upgrade works. A key concern is the time it is taking EirGrid and ESBN to deliver their new circuit projects with many projects outside of the Dublin region progressing slowly or in the case of the North West, not progressing at all as outlined in response to Question 3.

In relation to specific projects or regions of the grid, we propose that project delivery management boards be set up for each of the six regions identified in the TES 2019 System Needs Assessment report. These would be similar to the board established several years ago between EirGrid and ESB Networks for the delivery of the South West 220 kV projects, which worked very well. The boards would monitor delivery of projects as they moved from TESNA, into the TDP and through EirGrid's six step Grid Development Framework until they are energised. By comparison, no similar delivery board was established in the North-West and as a result the Renewable Integration Development Project (RIDP) has failed to make progress. These boards would oversee and ensure the successful delivery of the grid connections and reinforcements needed within the respective areas. We believe there should be representatives from the System Operators, CRU, DECC, and industry representatives which could then feed into a Grid Capacity Advisory Council which would

oversee the delivery of SOEF, similar to what was done for DS3. We previously submitted these proposals to EirGrid as part of the SOEF consultation.

Q8. CRU is proposing that the document should include a link to the related PR5 submission from EirGrid. This could constitute information on how many projects are on schedule, or ahead of schedule, relative to that submission. Would respondents consider this link helpful, and if so, is there related information that should also be considered?

Response: Yes, this information would be useful. The spend to date versus approved CAPEX would be useful as it would provide a most useful metric of project progress. If euro amounts cannot be provided, then percentage spend to date versus target amounts would be useful to track progress.



Ms Eileen Deegan
The Commission for Energy Regulation
The Exchange
Belgard Square North
Tallaght
Dublin 24

Western Development Commission (WDC) Response to the CRU Consultation on the Draft EirGrid Transmission Development Plan 2021-2030 CRU202222

Dear Ms Deegan,

The Western Development Commission¹ (WDC) welcomes this opportunity to make a short response to the above consultation on EirGrid's Draft Transmission Development Plan (TDP) 2021-2030.

The WDC is a statutory body with a remit to promote and encourage economic and social development in the Western Region (counties Donegal, Sligo, Leitrim, Mayo, Galway, Roscommon, and Clare). It operates under the aegis of the Department of Rural and Community Development.

The WDC regards the provision of quality energy infrastructure as essential to underpin the economic development of the region. Likewise, the WDC recognises the importance of the low carbon transition and is particularly concerned that the issues for our region are addressed². Our region has very significant on and offshore renewable energy resources and it is important both to the economic development of the region, and to the achievement of the national renewable energy targets, that these resources are used to best advantage. In addition, recent geopolitical events have highlighted the need to accelerate Ireland's transition from imported fossil fuels, and our region can make a significant contribution to this.

The transmission network in the region is underdeveloped (as noted in the Draft TDP Section 5.2) and the WDC is concerned that the projects listed in the Draft TDP will not address the region's need especially in relation to the RES integration necessary to achieve government climate targets.

In this brief submission we highlight a number of issues for electricity transmission in the Western Region particularly relating to the Renewable Energy Sources and briefly answer the questions posed by the CRU in the consultation document on the draft TDP.

Our Submission

¹ For more information about the Western Development Commission see www.wdc.ie

² <https://westerndevelopment.ie/policy/publications/making-the-transition-to-a-low-carbon-society-in-the-western-region-key-issues-for-rural-dwellers-august-2020-full-report/>



As noted above, in the submission we first consider how the Transmission Development Plan 2021-2030 addresses some of the issues for the transmission system in the Western Region. These are:

1. Network development in the north west and west
2. Offshore wind
3. Other aids to grid stabilisation

1. Network development in the north west and west

As noted in Section 5.2 of the TDP 2021-2030 the existing transmission network in the region (most of the Western Region under the WDC remit is in EirGrid's BMW region) is predominantly 110kV and 220kV with limited 400kV infrastructure in the southern part of the region. The northwest in particular is relatively isolated from the 220kV network and mainly comprises long lines of 100kV grid. There is a strong wind resource and already significant wind generation in the region. This along with the lower levels of electricity demand, means that the level of generation is great than the capacity of the network resulting in local constraints.

There is, and has been for a number of years, a very clear need for significant investment in the network in region. The wind resource is the best in Ireland, and it is essential to ensure that this resource, which gives rise to excellent wind farm capacity factors, is made best use of in order to efficiently achieve national climate action targets. Lack of investment in the region's network undermines our capacity to achieve this potential.

We are, therefore, very concerned that the North West Project (CP0800) has been cancelled, and removed from the PCI list, and that no project has been put in its place to address the serious issues in the northwest and in Donegal in particular. The need for investment in the electricity network in the northwest has been clear for many years and yet, while the proposed North West Project has been cancelled with no clear explanation in the draft TDP, there is no indication of what will replace it, when a replacement project will be developed, and what potential capacity improvements would arise from any new project.

While we welcome the progress with the North Connacht project in the west (Mayo-Roscommon), we are also concerned that it will be at full capacity by the time it is commissioned and that more investment will be needed in the area.

A very significant increase in renewable electricity will be required to achieve targets for 2030 and beyond to 2050. Given the time it takes to plan and develop the transmission network, a longer term view needs to be taken to ensure investment we make in this decade will have capacity to meet our needs in the longer term. This is especially important in the Western Region which has significant resources for renewable energy but has been left behind in terms of network development.

2. Offshore wind

In its discussion of offshore wind farms (Section 6.4.1 of the TDP 2021-2030), the focus is on the east coast and there is no mention of the potential for significant and rapid development of floating



offshore wind (FOW) on the west coast. The Western Region has some of the best conditions for offshore wind in the world, with a long coastline and consistently high wind speeds. We need to unlock the potential of our deeper waters and stronger winds on the west coast. This is the key to the energy transition in Ireland to allow us to meet our long term net zero target. The Programme for Government specifically refers to at least 30GW of floating offshore wind potential off the west coast by 2050.

We believe that the focus on projects off the east coast in section of the TDP is too narrow and that EirGrid must consider the opportunities off the West coast. The speed at which FOW technology has developed has been very rapid, and this pace of growth is likely to continue up to and beyond 2030, so it is important that we allow for these projects to develop as soon as possible. The WDC believes that the speed of development of offshore floating wind elsewhere (particularly in Scotland, but also Norway, Portugal and across the globe) shows that some of the assumptions used by EirGrid about opportunities for offshore generation may underestimate the potential for rapid development of offshore wind on the west coast

Moneypoint 400kV substation can facilitate offshore wind capacity located off the Clare coast. However, any offshore wind generation located north of Galway along the Atlantic will require the development of new grid infrastructure. Although we recognise that projects are at an early stage of development, we are also conscious that planning and development of appropriate grid connection for large offshore wind farms on the west coast must commence immediately so that their completion aligns with potential commissioning dates for offshore projects.

3. Increasing demand as an aid to grid stabilisation

While we strongly urge more focus on network development and reinforcement in the Western Region, we also note that incentivising the location of large demand could help to support the transmission network in the region. This is likely to include large users like data centres. While the location of centres of demand such as data centres outside the Greater Dublin Area is considered in EirGrid's State of our Electricity Future (300MW of data centre demand is assumed to connect on the 220kV network outside Dublin) the possible impacts of this is not discussed in the draft TDP. Likewise, there is no discussion of the CRU direction³ to the System Operators in relation to the data centre grid connection processing which directs them to prioritise processing of data centre connection applications outside a constrained region (Greater Dublin) of the electricity system. The impact of new centres of demand in the Western Region on the transmission system in the region is not considered.

In addition, innovation and changing market conditions for Power-to-X also need to be considered. Green hydrogen is a key example of this, with hydrogen production and storage facilities expected to help support a highly variable RES E system. A number of projects are currently in development in our region (Mercury Renewables being the most advanced, but others at are early stages of development). Such innovation support could allow the areas of the Western Region with low

³ https://www.cru.ie/document_group/data-centre-grid-connection/



network capacity to make the most of abundant wind resources (both on and offshore) and provide a local demand which can help to support the grid in the region.

The EU directive outlining the requirements for the TDP (see more below) notes the importance of taking into account demand response. We do not believe this draft TDP does this.

4. Consultation Questions

Q1. *Does the content and format of the document adequately reflect the intent and purpose of the TDP as set out in legislation?*

The [Directive \(EU\) 2019/944 common rules for the internal market for electricity](#) as linked in the CRU consultation document notes that

When elaborating the ten-year network development plan, the transmission system operator shall fully take into account the potential for the use of demand response, energy storage facilities or other resources as alternatives to system expansion, as well as expected consumption, trade with other countries and investment plans for Union-wide and regional networks.

We do not consider that there is sufficient consideration of the use of demand response, energy storage facilities or other opportunities in the draft TDP.

While we acknowledge, and welcome, some of the improvements in the TDP format over recent years, we believe that it is still more of a progress report on projects which are already at a relatively advanced stage of development (Steps 4-6 of EirGrid's six-step process for developing the Grid). There is no information about other network developments which may be needed by 2030, and little on what is in early stage development but will be advanced or completed by 2030. The draft TDP does not seem to reflect the intent of the legislation.

Q2. *Section 2 of the TDP 2021-2030 describes investment drivers and system needs. Does the document outline sufficient actions to address the drivers and needs presented? If not, please highlight the specific areas where additional actions may be required.*

Section 2 of the TDP provides a general review of the investment drivers and system needs but does not give any specifics or details relating to particular areas or investments. Thus, issues outlined above (the need for investment in the north west and west, the requirements of potential offshore wind developments on the west coast and the location of demand) have not been discussed in any detail. A more detailed picture of the issues, with data on current and future demand and supply issues trends as they impact the transmission network, would be helpful.

Q3. *The North-West (section 3.2) has, for some time been identified as being an area where there is particular difficulty with network development. Does the TDP 2021-2030 adequately detail the plan to now resolve it?*

No, as noted above, we are very concerned that North West Project (CP0800) has been cancelled. As the previous TDP (2020-2029) noted (p39) the project comprised reinforcement of the grid in the north-west. The driver of this project was RES integration. The amount of renewable generation seeking to connect in Donegal is in excess of the local demand and the capacity of the network. This generation therefore needs to be transferred out of the area to relieve congestion on the network. Despite this clear need the TDP 2021-2030 does not give any information about why the decision to



cancel the North West Project was made and how it plans to resolve issues and invest in the network in the north west network in the northwest. There is no indication that there is a plan in place, or even that such planning has commenced noting only that:

“The need for new network development in the north west, between Srananagh substation and substations in county Donegal, remains and has been identified in Shaping Our Electricity Future. However, the scope of the plausible scale of solutions has changed to include additional technologies, and to include investigation of connection to a number of substations in Donegal. Consequently, a new project will be started to replace CP0800 and reported in future TDPs.” (p35)

It also notes

We will continue to assess reinforcement needs in the North-West through our System Needs Assessment report and to identify candidate solutions as part of the Shaping Our Electricity Future project, aiming to find new projects required in the area beyond those already progressing through the grid development process (p46)

Neither of these statements provide adequate detail on a plan to resolve network issues in the north west.

Q4. *Would it be helpful to link projects to the specific challenge they are addressing? Examples of this would include the North-West project as identified in the Renewable Integration Development Project and the Dublin Security of Supply constraint as set out in CRU paper CRU/18/228 dated 05 October 2020. If yes, would it be helpful to include the date and source of that challenge identification, and the timeline for addressing that challenge along with the associated project(s) completion date(s)?*

Yes, it would be helpful to link project to specific challenges and to provide some detail on the challenges which drive the project need. While links can usefully be given to the documents more information should be provided in the TDP itself.

Q5. *The TDP currently provides general and non-project specific reasons for changes in project status e.g., from Active to On Hold or Removed. Is there a benefit to the transmission system development in providing project specific reasons for these changes, with an exception where there is a commercial sensitivity? If yes, please specify the benefits.*

Yes, there would be benefit in doing this. It allows the reader to better understand the reasons for the changes, for example in relation to the North West Project and to have more confidence in the TSOs decision making and an understanding that there are good reasons for the decisions made. It would also allow, where appropriate, users of the document to engage with the reasons given or data provided. This would make the TDP a more useful document.

Q6. *Are there any current network constraints that are not included in the TDP and will not be resolved by the successful completion of projects set out in the TDP 2021-2030?*

As noted above (Q3) in relation to the north west, we are very concerned that the existing network issues in the north west and the lack of capacity for increased RES integration are not addressed in the Draft TDP. In addition, while we welcome the progress with the North Connacht 110kV We have noted the importance of ensuring that the network in the west is has capacity for significant future



offshore wind connection on the west coast. No reference is made to this, but developments are likely to be required and commissioned at or around the end date of this TDP.

Q7. *Does this paper raise any concerns around delivery capability considering the challenges ahead? CRU notes that there are 145 live projects in the 2021 report and at the time of the freeze date, 15 were completed and 43 due were scheduled for completion in 2021. 30 are scheduled for completion in 2022. Comparing this to previous reports, the 2020 report showed 11 projects completed in the previous year, the 2019 showed 23 projects completed, and the 2018 report had 26 projects completed.*

There has been a significant increase in the number of projects but given the importance of increasing renewable generation of electricity and the electrification of much energy use in Ireland's climate actions, and current instability in global energy markets, it is likely that there will be an even greater increase in require projects in the coming years. It is therefore essential that EirGrid develops its delivery capabilities so that delays are minimised.

Q8. *CRU is proposing that the document should include a link to the related PR5 submission from EirGrid. This could constitute information on how many projects are on schedule, or ahead of schedule, relative to that submission. Would respondents consider this link helpful, and if so, is there related information that should also be considered?*

If the timelines of the PR5 and the TDP are aligned this may be helpful.

Conclusion

The WDC is pleased to make this submission to the consultation on EirGrid's Draft Transmission Development Plan 2021-2030. If there are any queries concerning this submission, please contact me.

Dr Helen McHenry,
Policy Analyst
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Bord na Móna

Commission for Regulation of Utilities,
The Grain House,
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19 April 2022

Emailed to: Eileen Deegan (edeegan@cru.ie)

Re: Bord na Móna Response – CRU Consultation CRU202222

Dear Eileen,

Bord na Móna welcomes the opportunity to engage with the CRU and provide input on EirGrid’s draft Transmission Development Plan (TDP) 2021 - 2030. Bord na Móna has a substantial pipeline of generation projects across an array of technologies and mainly consists of large-scale wind and solar developments. It is Bord na Móna’s mission to become a leading provider of renewable energy in Ireland by 2030 and to date, in addition to our fleet of operating generation assets, we have secured a number of grid connection agreements and offers which underpins our intent in achieving our target. Furthermore, our development programme for renewable energy projects, which utilises the vast land bank Bord na Móna owns, has the potential for power output in the region of an additional 1 GW by 2030. The consultation paper poses eight questions and our responses are listed below.

Q1. Does the content and format of the document adequately reflect the intent and purpose as set out in legislation?

Timelines

Bord na Móna notes the requirements of S.I. No. 445/2000 and particularly 6(c) where it is outlined the development plan shall take account of the existing and planned generation, transmission distribution and supply.

The very nature of the document is to plan the development of the network, however, we note the data freeze is 1st January 2021. Whilst appreciating a data freeze is required to develop the document, its inputs are far outdated in respect of the publication date and current network needs. A data freeze over one year from publication date cannot take account of existing and planned projects as developments will have moved on in their lifecycle.

Furthermore, a document with intent to set out a plan should have key deliverables and be aligned with current system needs, otherwise it is questionably a “plan”. We would recommend for future issues of development plans to have (1) a data freeze closer to publication date i.e. within one – two quarters of scheduled publication date which will lend itself to be closer aligned with system needs and RES-E targets and (2) bring forward the timelines for issuing development plans closer to its representative years e.g. 2022 – 2031 development plan should be issued within H1 2023.

Content & Format

Section 5 of the development plan provides a summary of new and on-going projects. To add further clarity on these projects, we would suggest adding categories which can offer the reader further insight. Such categories might include, developer led, TSO led, DSO led projects. Developer led projects may or may not proceed in accordance with forecast timelines, however, TSO and DSO led projects

Bord na Móna

which are within the control of EirGrid and ESB should have baseline delivery dates and provide commentary on which of the six steps the project is currently within. Commentary on each project within the TSO/DSO control would be very useful to stakeholders within the industry. Currently provided tables highlight expected completion dates, however some of these project completion dates have been moving year on year.

Q2. Section 2 of the TDP 2021-2030 describes investment drivers and system needs. Does the document outline sufficient actions to address the drivers and needs presented? If not, please highlight the specific areas where additional actions may be required.

TDP 2021 – 2030 sets out EirGrid’s view on areas for transmission network investment and development. This information and view from the System Operator provides vital information for stakeholders within the industry. Our view is that the highlighted projects 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 i.e. to 2030. It is also noted within the document “significant challenges will arise in extending and reinforcing the network to connect new RES”, with this in mind, the development plan should account for this and plan accordingly such that new RES can be accommodated without significant constraints imposed on projects.

Q3. The North-West (section 3.2) has, for some time been identified as being an area where there is particular difficulty with network development. Does the TDP 2021-2030 adequately detail the plan to now resolve it?

The details set out in section 3.2 highlight projects removed in 2020 and identifies the need to commence a new project. There is no detail in relation to the project.

As a general observation, high level information such as that provided in section 3.2 does not provide details to understand the solution which EirGrid will adopt to relieve known issues. This is consistent with other projects highlighted and does not provide developers and/or investors with enough detail to understand how EirGrid will deliver on mitigating grid issues.

Q4. Would it be helpful to link projects to the specific challenge they are addressing? Examples of this would include the North-West project as identified in the Renewable Integration Development Project and the Dublin Security of Supply constraint as set out in CRU paper CRU/18/228 dated 05 October 2020. If yes, would it be helpful to include the date and source of that challenge identification, and the timeline for addressing that challenge along with the associated project(s) completion date(s)?

Bord na Móna would agree with detail and challenges of projects being shared.

Q5. The TDP currently provides general and non-project specific reasons for changes in project status e.g., from Active to On Hold or Removed. Is there a benefit to the transmission system development in providing project specific reasons for these changes, with an exception where there is a commercial sensitivity? If yes, please specify the benefits

Bord na Móna would agree with the inclusion of commentary on the status of the project and rationale for change. Of particular interest would be projects within the TSO/DSO’s control who move from active to on hold or removed, projects are created with intent and their change in status with details would add clarity.

Q6. Are there any current network constraints that are not included in the TDP and will not be resolved by the successful completion of projects set out in the TDP 2021-2030?

Bord na Móna

Bord na Móna are of the view the midlands region requires further analysis examining power flows and local constraints. Network power flows, current generation and future build out within the region, are likely to see high levels of networks constraints. These network constraints impact power flows to and from the region, somewhat forming a bottleneck and impacting power flows to the east coast. The total level of dispatch down for the region is highlighted in EirGrid's analysis *Enduring Connection Policy 2.1 Constraints Reports for Area J Solar and Wind*¹ with dispatch down rising to approximately 25% in 2026.

A regional project for the midlands requires development and action in the near term. The volume of future generation, from both outside and within the region requires such a project to enable power flows as opposed to being heavily dispatched down and avoid forming a bottleneck.

Q7. Does this paper raise any concerns around delivery capability considering the challenges ahead? CRU notes that there are 145 live projects in the 2021 report and at the time of the freeze date, 15 were completed and 43 due were scheduled for completion in 2021. 30 are scheduled for completion in 2022. Comparing this to previous reports, the 2020 report showed 11 projects completed in the previous year, the 2019 showed 23 projects completed, and the 2018 report had 26 projects completed.

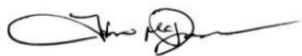
As discussed as part of our response to question 2, projects should be further categorised such that the reader can understand which projects are, developer led, TSO led, and DSO led. Developer led projects timelines will likely change as a high percentage of these projects will require support mechanisms to build out e.g. RESS, which is a competitive auction based process and the resultant may leave some projects not achieving the required support to build out. This breakdown of projects can indicate those projects which are solely in the control of the TSO and DSO. This may provide an improved metric for understanding the progress of projects.

Overall, to deliver upon a large volume of projects which will continue throughout this decade to achieve RES-E targets, delivery capability needs to be strengthened through resourcing, tooling and potentially exploring alternatives such that resources of others within industry can be drawn upon to achieve mandated deliverables.

Q8. CRU is proposing that the document should include a link to the related PR5 submission from EirGrid. This could constitute information on how many projects are on schedule, or ahead of schedule, relative to that submission. Would respondents consider this link helpful, and if so, is there related information that should also be considered?

Bord na Móna would agree with the proposed inclusion.

Yours Sincerely,



John McDonagh,
Grid Delivery Manager,
Bord na Móna Powergen

¹ <https://www.eirgridgroup.com/site-files/library/EirGrid/ECP-2-1-Solar-and-Wind-Constraints-Report-Area-J-v1.0.pdf>

Eileen Deegan
Commission for Regulation of Utilities
The Exchange
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19th April 2022

RE: EirGrid Draft Transmission Development Plan 2021–2030 – CRU202222 (‘paper’)

Dear Eileen,

Bord Gáis Energy (**BGE**) welcomes the opportunity to respond to the CRU’s consultation on EirGrid’s draft Transmission Development Plan (**TDP**) for 2021-2030.

We believe that the TDP as a document needs to develop to provide a holistic and strategic consideration of all the changes expected on the transmission system in the next 10 years. The TDP should expand to include a “latest best view” of the range of changes expected to the transmission environment which blends recent expected changes to the power system and the grid with the existing projects that currently make up the TDP. We also identify a number of areas within the TDP that seem to conflict with the delivery of EirGrid’s long-term aims with regards to grid improvements and the timely completion of projects as scheduled. We explore each of these areas further below and provide answers to the consultation questions from the paper that are most relevant to our concerns and suggestions in the Annex which follows this response. Our central belief is that all transmission system development needs should be subject to a Cost Benefit Analysis (CBA) by EirGrid at the earliest possible point. The aim of the CBA should be to determine which solution(s) (e.g., a market/ grid technology/ grid development solution) to the challenge in question is optimal from the consumer perspective in terms of costs, services improvements etc.¹ We ask EirGrid to incorporate into the TDP only those grid infrastructure development projects for which a CBA has determined as optimal in addressing the development challenge in question.

1. The need for the TDP to be a holistic, strategic, and forward-looking document:

We ask EirGrid to expand the use of the TDP to be an overarching document to simplify and centralise the view of grid development plans for the next 10 years, including the implications for policy, technical and network developments drivers/ needs such as markets, security of supply, RES integration, etc. Grid development plans (determined on foot of a CBA as set out above) from other EirGrid documents such as Shaping Our Electricity Future (SOEF) and Tomorrow’s Energy Scenarios (TES) should also be included in the all-encompassing TDP to overcome the diverse publications of current grid development plans, and the different freeze dates applied.

The timing of the TDP within the suite of EirGrid’s annual reports together with the fact that the TDP has an early freeze date of over a year before its actual release to the public, in our view leads to it being drafted and read in an out-of-date context. Therefore, the TDP seems to operate in a silo much

¹ Besides transmission infrastructure development, depending on the outcome of the CBA the solution(s) to a grid challenge may be non-infrastructure project(s) (e.g., a system services product, or technical solution like DRR or change in mode of Operations as discussed under EirGrid’s Shaping Our Electricity Future Report).

the same as the siloed interaction of EirGrid's Tomorrow's Energy Scenarios (TES) and Shaping Our Electricity Future (SOEF) publications. The introduction of TES has not noticeably triggered any change to the approach and structure of the TDP. It is questionable if the recent introduction of the SOEF report will bring an improvement to the focus of the TDP to be more holistic of expected changes to the grid given what has been included in the TDP under consultation here. The coverage of the TDP needs to evolve as suggested above to provide a fuller picture of all the known changes in needs and requirements of the transmission system to give stakeholders a better, more holistic consideration of all the known changes in both supply and demand for the period of the report. The grid infrastructure development projects included in the TDP should only be those projects that have been determined as the optimal solution for the consumer on foot of CBAs applied to a range of market/ technology/ grid development solutions to challenges facing EirGrid.

The lack of holistic information contained in the TDP makes it difficult to understand the realistic delivery timescale for the changes that will impact participants and investors. The TDP is not a holistic picture of all the changes expected to the transmission environment for the next decade, and those projects that are known and defined are experiencing creeping delays to their estimated completion dates (ECDs). This gives participants and investors no confidence that the situation currently being expressed in the TDP will not go through radical changes for specific units or nodes due to reprioritisation from known changes or constrained resources being reallocated to developing projects. An example of the fact that the TDP is not adequately dealing with the inclusion of future challenges due to the freeze date being too early is that there is minimal consideration of connecting offshore wind generation developments in this draft TDP, with only one project² in the TDP 2021-30. This is despite the fact that a number of offshore developments are expected on the east, south and west coasts of the country within the next ten years.

To address the above concern therefore, the TDP would in our view benefit from adding a strategic, forward-looking section (which would be populated just before publication) that blends the changes expected with the grid changes already known for the period of the report. Time should be taken to include at a high-level the changes to the grid expected to be driven by offshore wind/ data centre developments/ capacity, renewables and system services auctions' results such that potential gaps for the performance of the transmission system can be identified and suggestions can be made as to how the TDP may change to close these gaps. BGE understands that the certainty and level of detail in this "strategic lookahead" section will be a lot lower than the other sections of the TDP, given that EirGrid will not have even begun to consider any of the changes under its "six-step" grid development process. However, without some blended, holistic picture of all known projects (encompassing for example TES and SOEF plans provided the final list of grid plans in the TDP have been determined under CBAs as the optimal way to address the challenges in question instead of market or technological solutions) and their potential to impact the transmission system (structure and operations), the TDP will remain unreflective of the transmission environment being seen by participants. Continuation of a TDP that does not factor in forward-looking expectations and implications for grid developments would also see the TDP continue to operate in a silo, diminishing the potential usefulness of the TDP to participants and investors.

2. Comments on the TDP 2021-30 as published:

² CP0749 - Oriel Offshore Windfarm

Insufficient plans to address existing constraints – Constraints in the TDP are not being addressed. The load flow constraints in the Dublin region require two units to be constrained on to meet requirements. Yet we cannot establish which projects within the TDP would address this constraint as no network upgrade projects between the Poolbeg, Dublin Bay and Huntstown units are identifiable. As such, this known constraint is not being addressed and is an example of the issue being queried in Q6 of the CRU consultation.

Furthermore, most of the operational constraints due to network operability do not seem to be addressed in the TDP, such as the voltage control issues in the south and southwest. This would suggest that the current solution to constrain on generators in the region(s) will endure. Constraining generators to alleviate system constraints not only drives up imperfections costs for consumers but also undermines EirGrid's stated aim to reduce the number of large conventional synchronous generators online by 2030. We need to see more in the TDP as to how projects (through their problem statements) are addressing known issues (or not). Linking projects to the challenges they are addressing, as suggested in Consultation Question 4, as well as continuous updates as to the status or changes to the delivery of a project as suggested by Consultation Question 5 is critical for investor confidence and to ensure that consumers are getting value for money from grid investments.

Our concerns as expressed in response³ to previous TDP consultations on the lack of clarity on the network improvements in the Cork area to mitigate congestion and power exports issues before the arrival of the Celtic Interconnector, remain. Our in-house assessment has determined that there are no upgrades outlined in this year's TDP that will fundamentally change the amount of power that can be exported north or east from Cork once Celtic connects. This is a significant concern not only for market participants in the already constrained Cork area but in terms of the value that consumers will see from additional flows on Celtic. As it stands, that value is considerably undermined given the apparent lack of planned grid developments that will enable Celtic interconnector benefits to fully materialise. We ask the CRU to urgently address this matter with EirGrid given that the Celtic Interconnector connection is less than 5 years' away.

Estimated Completion Dates - The Estimated Completion Dates (ECDs) for most of the projects are extending from the initial ECDs set in earlier TDPs. This is a concern and relevant to Consultation Question 7. The number of projects year on year is growing and is expected to grow even further next year with the roll-in of the SOEF candidate reinforcements, new generation connections, and predicted growth in offshore wind connections. These additions raise further concerns on the certainty of the ECDs in the current TDP, even those some years out, and the delays which may result to existing investment projects who had expected completion to occur in line with the initial dates indicated in previous TDPs. The growth in project numbers also suggests the potential for resource constraints within EirGrid on the deployment of specialised personnel and resources across a growing number of projects as well as sufficient supply chain availability of special transmission grid equipment to complete the projects as currently estimated. We ask EirGrid and the RAs to consider and clarify the extent to which investors can have confidence in TDP published ECDs or how our concerns on continued delays to ECDs will be addressed. We believe that the forward-looking approach of the TDP suggested in section 1 above would go some way to offering additional confidence on the expectation that stipulated ECDs can be met.

Reactive nature of plans – The projects contained within the TDP seem to be reactive in nature and not keeping pace with the evolving requirements being seen by participants today. An example of this is the concentrated ramping up of projects in recent years to meet the transmission changes brought by the growth in data centre connection requests in the Dublin area. These Large End User (LEU)

³ BGE response (dated 21st May 2021) to the consultation on the draft EirGrid Transmission Development Plan 2020-2029

connection requests could have been expected from the signals given by industry in the preceding years. We believe that a more holistic, blended view of future known requirements into the TDP would have exposed this gap so allowing a more integrated and smoothed solution for data centre connections in the Dublin area. Of the 22 projects in the Greater Dublin network, at least 8 appear to be directly focused on large demand connection needs, with another 3 projects being more indirectly linked.

In our view, the lack of consideration for connections relating to offshore wind projects in the current TDP is another potential gap for the development of the transmission system which may require another “focused ramp-up of resources” in the near future to facilitate these connections. Considering the concentration of projects identified above to address large demand connection needs in the Greater Dublin area, the risk exists that another significant subset of projects in future TDPs may need to be ring-fenced to address offshore wind connections when that requirement is now already visible to participants. We have already addressed concerns around the lack of planned grid developments to facilitate materialisation of the benefits of connecting the Celtic interconnector at the beginning of section 2 which is another example of an area in which we have foresight of the need for grid development but for which insufficient grid planning is forthcoming. The TDP needs to show the “latest best view” of changes expected over the period of the plan which for us requires inclusion of expected grid developments to address offshore wind also as indicated in the SOEF. A ‘forward-looking’ TDP that incorporates insights from the TES and SOEF would help alleviate these concerns above.

Accuracy of the TDP map information – Finally we ask EirGrid to review the maps used in the TDP to convey the projects in the plan as some projects as mapped are either altered in nature or are omitted in the maps. For example, CP0984 Belcamp - Shellybanks New 220 kV Cable does not appear on any of the maps in the TDP, while the Tynagh to Oldstreet line is appearing as a 110kV line in the TDP whereas it has been described in other EirGrid information sources as being a 220kV line. We appreciate the spread and precision of project and asset details necessary to build the TDP and we ask EirGrid to ensure the finalised TDP is accurate in both project description and mapping.

We hope the above comments are clear for the CRU and EirGrid. Our main aim in responding to this Consultation is to encourage EirGrid to develop the TDP to present participants with a more holistic, forward-looking representation of all the changes confirmed and expected to the grid system in the period covered by the report. This likely requires inclusion of plans outlined at least from the SOEF and an extended / close to publication freeze date for a forward-looking section of the TDP. As canvassed to EirGrid in response to another recent consultation⁴, BGE believes that only those grid development projects that have been determined under a CBA as the optimal solution (over for e.g., a markets or technical solution) for challenges at issue, should find their way into the ten-year lookahead TDP.⁵ We believe that this CBA approach should be expedited such that we have a robust full single list of transmission grid developments to hand as soon as possible to ensure we will meet our 2030 targets. We also seek to better understand the CRU’s and EirGrid’s view on the efforts made in planning grid developments to address constraints, including the existing constraints on exporting power to the north and east from the Cork area. The lack of grid plans coming forward for the Cork

⁴ EirGrid’s Draft 2021 Annual Innovation Report, see BGE response at [Draft: EirGrid 2021 Annual Innovation Report - Submissions | EirGrid Consultation Portal](#)

⁵ All solutions chosen for implementation by EirGrid in the next decade in our view need to be informed and justified by a CBA that appropriately assesses all options ranging from system services, infrastructure (grid) and non-wires (technology) solutions.

area on connection of the Celtic IC will undermine the benefit that the Celtic interconnector can bring for renewables and consumers and is an issue that needs to be urgently addressed.

Please do not hesitate to contact me should you require further information or wish to discuss any aspect of our response.

Yours sincerely,

Ian Mullins
Regulatory Affairs – Commercial
Bord Gáis Energy

{By email}

Annex

Q1. Does the content and format of the document adequately reflect the intent and purpose of the TDP as set out in legislation?

No. In our view, the draft TDP 2021-2030 should be expanded to include a strategic, forward-looking section (which would be populated just before publication) to give a “latest best view” of “...existing and planned generation, transmission, distribution and supply,”⁶ that blends the grid wires-based changes expected with those already established for the period of the report. It is appreciated that EirGrid needs to balance project certainty with the developing needs in drafting the TDP but we feel that participants, investors and consumers would better benefit from a blended, holistic picture of all known and expected projects showing their potential to impact the transmission system (structure and operations). This in our view implies that inclusion of grid plans from the SOEF in the TDP is required provided those SOEF wires-based projects have been verified as the optimal solution to addressing the challenge at issue. Please see section 1 above for our view on the why and how the TDP should be more holistic.

Q2. Section 2 of the TDP 2021-2030 describes investment drivers and system needs. Does the document outline sufficient actions to address the drivers and needs presented? If not, please highlight the specific areas where additional actions may be required.

No. The time taken to draft the TDP, compounded by the early freeze date of over a year before its actual release to the public, means that the level of change behind the drivers for investment do not fully incorporate the known drivers of changes expected by participants and investors (e.g., the results of the 2024/25 T-3 and 2025/26 T-4 capacity auctions are not included as they occurred after the freeze date). Furthermore, the lack of consideration for connections relating to offshore wind projects and possible grid solutions to cater for Celtic interconnector flows into and out of Cork in the current TDP is another potential gap for the development of the transmission system which may require another “focused ramp-up of resources” in the near future to facilitate these connections. In our view, the TDP needs to show the “latest best view” of changes expected over the period of the plan which for us requires inclusion of expected grid developments to address offshore wind also as indicated in the SOEF. A ‘forward-looking’ TDP that incorporates insights and expected grid developments (when determined as optimal by the application of a CBA) from the TES and SOEF would help alleviate these concerns above.

Q3. The North-West (section 3.2) has, for some time been identified as being an area where there is particular difficulty with network development. Does the TDP 2021-2030 adequately detail the plan to now resolve it?

Network development needs in the North-West are considered in the SOEF, including candidate reinforcement projects to address some of the issues in this region. However, given the freeze date of the TDP, these SOEF projects do not appear in it. The TDP would be of more value to investors and participants if it covered a more holistic list of EirGrid’s current and future expected development plans in all regions, i.e. the TDP needs to be an overarching document to simplify and centralise the view of grid development plans for the next 10 years with a freeze date as close to publication as possible. Grid development plans (on foot of a CBA as set out above in our cover letter) from other EirGrid documents such as Shaping Our Electricity Future (SOEF) and Tomorrow’s Energy Scenarios (TES) should be included.

Q4. Would it be helpful to link projects to the specific challenge they are addressing? Examples of this would include the North-West project as identified in the Renewable Integration Development Project and the Dublin Security of Supply constraint as set out in CRU paper CRU/18/228 dated 05 October 2020. If yes, would it be helpful to include the date

⁶ Regulation 8(6) of Statutory Instrument (SI) No. 445 of 20005 as amended, section (c)(i)

and source of that challenge identification, and the timeline for addressing that challenge along with the associated project(s) completion date(s)?

Yes. Improvements need to be made to the TDP to link the development challenge and the benefit provided by the project being deployed. An over-arching strategy needs to outline the flexibility challenges we are facing by 2030 and beyond, with the TDP setting out the grid infrastructure developments planned to address these challenges when grid/ wires-based solutions are determined as optimal by CBAs (please see cover letter). These challenges include the existing grid constraints we have on the system today. Each grid project should be linked to the challenge and the impact (positive or negative) for consumers at least. We also agree that it would be helpful to [include the date and source of that challenge identification, and the timeline for addressing that challenge along with the associated project\(s\) completion date\(s\)](#).

Q5. The TDP currently provides general and non-project specific reasons for changes in project status e.g., from Active to On Hold or Removed. Is there a benefit to the transmission system development in providing project specific reasons for these changes, with an exception where there is a commercial sensitivity? If yes, please specify the benefits.

We support any development to the project details in the TDP which more clearly demonstrates to participants the problem statement the project is addressing, the solution criteria required, the optimisation of the project choice, and the status of the project delivery against the timelines established. Any delay to a project delivery status or its the Estimated Completion Date (ECD) in the TDP should be explained, and reasoning provided for in the amended ECD. Better insight for investors to possible ECD delays can allow investors to better decipher the risk to their own projects succumbing to a similar delay that has occurred in another project.

Q6. Are there any current network constraints that are not included in the TDP and will not be resolved by the successful completion of projects set out in the TDP 2021-2030?

We have set out the following in our response – please see section 2 above:

- The load flow constraints in the Dublin region require two units be constrained on to meet requirements. Yet we cannot establish projects within the TDP that would address this constraint as no network upgrade projects between the Poolbeg, Dublin Bay and Huntstown units are identifiable. We ask for more insight on the reasoning behind this.
- Most of the operational constraints due to network operability do not seem to be addressed in the TDP, such as the voltage control issues in the south and southwest. This would suggest that the current solution to constrain on generators in the region(s) will endure. The rationale for this approach, allowing constraining of generators as an enduring solution which will drive up imperfections costs for consumers, is requested.
- It is not clear from the TDP as to the network developments that will be introduced to address the existing constraints on exporting power to the north and east from the Cork area. These constraints on exporting power from the Cork area will likely be exacerbated by the scheduled connection of the Celtic interconnector to the Knockraha station in Cork which undermines the benefits of connecting Celtic and the necessary grid planning and improvements required for this area therefore need to be urgently addressed.

Q7. Does this paper raise any concerns around delivery capability considering the challenges ahead? CRU notes that there are 145 live projects in the 2021 report and at the time of the freeze date, 15 were completed and 43 due were scheduled for completion in 2021. 30 are scheduled for completion in 2022. Comparing this to previous reports, the 2020 report showed 11 projects completed in the previous year, the 2019 showed 23 projects completed, and the 2018 report had 26 projects completed.

Yes. The Estimated Completion Dates (ECDs) for projects as set in previous TDPs are being extended in the current TDP raising concern that existing projects, even those some years out, are being delayed. Investment decisions made by participants based on previous TDP ECDs will be

under considerable scrutiny given these delayed completion dates which could negatively impact the viability of their investments.

Furthermore, the growth in project numbers expected from SOEF candidate reinforcements, new generation connections, and predicted growth in offshore wind connections which have not been sufficiently considered in this TDP further raises concerns around the realistic achievement of ECDs. These candidate reinforcements and connections also suggest the potential for resource constraints within EirGrid on the deployment of specialised personnel and resources across a growing number of projects. Sufficient supply chain availability of special transmission grid equipment to complete the projects as currently estimated is also a concern. Republishing the TDP as a holistic view of grid developments 10 years' ahead with close to publication date freeze dates would considerably help to add certainty to ECDs.

Please also see our answer to question 6 for the range of constraints not addressed by planned grid projects in this TDP. The delivery capability of several projects necessary in our view to achieve 2030 targets is currently unknown given the lack of planning around these constraints evident from this TDP.

Q8. CRU is proposing that the document should include a link to the related PR5 submission from EirGrid. This could constitute information on how many projects are on schedule, or ahead of schedule, relative to that submission. Would respondents consider this link helpful, and if so, is there related information that should also be considered?

As set out in our response, we believe that TDP should be expanded to include a strategic, forward-looking section (which would be populated just before publication) to give a “latest best view” of “...existing and planned generation, transmission, distribution and supply,”⁷ that blends the changes expected on foot of known drivers such as Celtic interconnector and offshore wind with those already established for the period of the report. Projects identified under the SOEF for example, provided a CBA confirms their choice as being optimal to address challenges in issue, should be included in the all-encompassing TDP. The TDP should be the central information source for grid planning for the coming ten years – a central holistic source of such information will bode well for investor confidence and helping to ensure developments necessary to deliver benefits for consumers materialise. All sources of project updates should be considered including those projects submitted to obtain funding allocation under PR5. Participants should be shown the status of projects against schedule and budget. Any variance in schedule or budget should be explained by EirGrid so that causation can be established and similar risks to other grid development projects can be isolated and mitigated against to ensure the timely value delivery of grid development projects for participants and consumers who will ultimately cover the costs involved.

⁷ Regulation 8(6) of Statutory Instrument (SI) No. 445 of 20005 as amended, section (c)(i)

Ms Eileen Deegan,
Commission for Regulation of Utilities,
P.O. Box 11934,
Dublin 24

Emailed to: edeegan@cru.ie

19th April 2022

EDF Renewables Ireland Submission to the CRU's Consultation on EirGrid's Draft Transmission Development Plan 2021-2030

Introduction

EDF Renewables (EDFR) is part of one of the world's largest electricity companies and our investment and innovation is bringing down costs for consumers and delivering significant benefits for communities. We operate in more than 20 countries around the world. We develop, construct and operate wind farms (onshore and offshore), solar and battery storage projects, and have more than 25 years' experience in delivering renewable energy generation.

We have recently opened an office in Dublin and are already in advanced discussions in relation to an onshore wind development pipeline of almost 1 GW with aspirations for far greater growth in Ireland across all technologies. This ambition is illustrated by our investment in 50% of the Codling Offshore Wind Park Development, off the East Coast of Ireland and the development of a solar portfolio which now has projects under construction.

EDFR welcomes the opportunity to engage with the CRU and respond to this consultation on the draft EirGrid Transmission Development Plan (TDP) 2021-2030.

Policy Context

Ireland's abundant wind energy resource can make a major contribution to our future low carbon electricity needs. We believe that, in the overarching context of the Climate Emergency, an accelerated pace of wind energy development, both on- and offshore, is now required to decarbonise the system.

The revised Climate Action Plan 2021 (CAP)¹ has increased our 2030 renewable electricity targets to 80%, has set out new electricity sector emissions reduction targets of 62% - 81% from 2018 levels and is aiming to complete the phase-out of coal and peat-fired electricity generation, among other targets. Realising the full potential of the Irish renewable energy sector is one of the central elements of the CAP and it

¹ <https://www.gov.ie/en/press-release/b0e43-the-climate-action-plan-2021-securing-our-future/>

includes a suite of actions to decarbonise the electricity sector and increase the quantity of renewable generation, to meet our 2030 targets.

It is clear that both off- and onshore wind, as well as solar, will play key roles in delivering a net zero electricity system. It should be noted that an SEAI Energy in Ireland 2020 Report² found that in 2019, electricity generated from renewable sources amounted to 11,780 GWh, already accounting for 37.6% of gross electricity consumption (compared with 33% in 2018). Wind was the largest renewable energy generator, furthermore, wind energy was the second largest source of electricity generated in 2019 after natural gas.

EDF Renewables Positions

In this EDFR response to the consultation on the CRU's Consultation on EirGrid's Draft Transmission Development Plan 2021-2030, we would like to highlight the following high-level points:

1. Transmission system development

- The CAP sets out a vision of how we can decarbonise Ireland's energy system. This is unlikely to be achievable without parallel development of the transmission system to accommodate the large volumes of renewable generation that will be required. Coupled with increased electricity demand, the existing transmission and distribution grids were not designed for the increased levels of power flows that are planned over the next few years. The current grid cannot support 3.5 GW of offshore wind energy, let alone the proposed 5 GW by 2030. A resilient electricity grid is essential to meeting our 2030 renewable electricity targets and our longer-term decarbonisation goals.
- EDFR are concerned that there appears to be a disconnect between the CAP 2030 targets and the EirGrid scenarios. The current capacity of the transmission grid means there is already a shortfall in the existing transmission and the likelihood is that this shortfall will only increase. We therefore urge EirGrid to align with the Government's CAP 2030 target of 80% renewable electricity generation, as opposed to the current plan for 70% RES-E, as set out in the Shaping Our Electricity Future Roadmap.
- We believe that a greater sense of urgency is needed with the EirGrid scenario planning. The scenarios presented do not indicate any sense of urgency, nor evidence of the developing crisis in grid capacity. We strongly encourage both the CRU and EirGrid to re-examine the scenarios and the level of ambition.
- It is not clear to us that the scenarios approach is the correct approach, as this doesn't reflect the reality of the increasing limitations of transmission system capacity and lack of access for new generation. Having examined the scenarios proposed, we note that the final output does not seem to match the CAP targets and we request that the CRU and EirGrid re-assess the goals in

² <https://www.seai.ie/publications/Energy-in-Ireland-2020.pdf>

much greater detail. We would request that EirGrid and the CRU convey the message of urgency in their plan, given the critical need to build additional grid capacity.

- While system management tools such as dispatch down will be effective in the management of renewable electricity on the system, even with full deployment of these there will still be a growing need for more generation and therefore more transmission capacity to connect this. The additional generation will be required to meet an increasing demand for electricity as sectors switch to electrification options to decarbonise. Fundamentally, more generators will require more wires, even with full implementation of a future “smart system”. It is not a case of either developing smart system management or building more transmission capacity – in practice, both will be needed. The scenarios need to reflect that and drive this change sooner. Future investors will be deterred if they see a pattern of developing renewable energy projects, only for them to become stranded assets, due to there being no grid to connect them to.
- We would like to work with both the CRU and EirGrid to discuss these issues and work towards finding potential solutions.
- We welcome the recently announced milestone by EirGrid of 75% System Non-Synchronous Penetration (SNSP). While this is good progress, we believe that major investment in the grid is urgently needed if the Irish Transmission Network will to be fit for the needs of 2030 and beyond. It is imperative that EirGrid reinforces and upgrades the grid infrastructure now, in order to accommodate the predicted increased future demand and to strive towards a zero-carbon system that can operate with 100% SNSP.
- We would urge both CRU and the Department to work closely with EirGrid to facilitate this step-change in ambition.

2. Transmission Network Issues

- *Dispatch Down* - Constraint and curtailment continue to be an issue for renewable generators. An effective management plan to minimise dispatch down needs to be developed in order to remove this risk for renewable units.
- *Market Design* - To build a system capable of reaching and exceeding 80% RES-E by 2030 and accommodating 100% SNSP for multiple hours of the year, the market design needs to develop accordingly, to ensure that renewables and supporting technologies can bid into the market. Additionally, the introduction of frameworks to incentivise build-out of system support technologies, such as synchronous condensers and storage, will be necessary.
- *Innovation* - We would also request more information on EirGrid’s innovation projects, some of which may allow significant capacity upgrades. In addition, alternative network solutions such as storage, demand side response and smart wires could free up additional capacity or alleviate some of the need for network reinforcement (subject to the caveat above that a degree of additional transmission capacity will always be needed to connect additional generation). We

welcome the development of long-term signalling and investment frameworks for such potential solutions. If private wire were to be allowed by EirGrid, developers would be enabled to create their own connections. This could potentially help EirGrid to release some of the consented projects. Major infrastructure must be delivered in a timely manner and not burdened with continual delays or abandoned for a solution that is only adequate in the short term.

3. Transparent Process

- *Scenario Planning* - EDFR welcomes further insight into EirGrid's scenario planning and into how projects come to be included in the Transmission Development Plan (TDP).
- *Decision-Making Process* - We would also seek clarity on EirGrid's decision making-process for grid projects, in terms of what metrics and factors they use. Additionally, we would welcome more transparency around risk to projects and mitigation plans around this. As the generator bears the risk of delays to transmission infrastructure and information regarding the risks should be made available.
- *Project Budget Figures* - Finally, it would also be useful to have budget figures published for individual capital projects which would allow for outturn comparisons on project completion.

4. Adequate Resourcing and improved Staff Retention

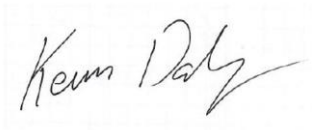
- We recommend that EirGrid would be sufficiently resourced, in terms of the development and operating spend required for the design and consenting of grid reinforcement solutions, and the capital spend required for new network build to deliver the multiple workstreams which will be required.
- Incentives must also be put in place for EirGrid to ensure they are progressing the required grid solutions in a timeframe that will allow the delivery of our offshore targets. We are concerned that if these resources or incentives are not provided for by the CRU in EirGrid's cost recovery mechanisms and regulatory framework, then EirGrid will not be able to deliver the necessary grid infrastructure.
- It is therefore vital that the CRU works together with DECC in supporting the approach of developing grid reinforcements, based on the strength of the renewable pipeline, via adequate funding and incentivisation of EirGrid in frameworks such as annual Price Review.

Conclusion

In conclusion, we would like to thank the Commission for Regulation for Utilities for the opportunity to engage on this matter and look forward to continuing our work with you in future.

Should you wish to discuss any of the issues raised in our response or have any queries, please contact Stella Burke on stella.burke@edf-re.ie, or me. I confirm that this letter may be published on the CRU website.

Yours sincerely,

A handwritten signature in black ink that reads "Kevin Daly".

Kevin Daly
Head of Development Ireland

CRU
The Exchange
Belgard Square North
Dublin 24

21 April 2022

Emailed to: Eileen Deegan - edeegan@cru.ie

RE: Draft Transmission Development Plan 2021-2030

Wind Energy Ireland (WEI) welcomes the opportunity to engage with CRU and provide feedback on the Draft Transmission Development Plan 2021-2030.

WEI is the nation's largest renewable energy organisation with more than 170 members who have come together to plan, build, operate, and support the development of the country's chief renewable energy resource. We work to promote wind energy as an essential, economical, and environmentally friendly part of the country's low-carbon energy future.

We have the following comments in relation to the consultation questions.

Q1. Does the content and format of the document adequately reflect the intent and purpose of the TDP as set out in legislation?

WEI Response: We have raised the same comments in multiple responses to previous TDP consultations but the points merit repeating; we recognise that the production of the TDP is a statutory requirement and a condition of EirGrid's TSO licence but we stress the need for more up to date information on grid development which would be of more benefit to industry and would alleviate some of the workload on the TSO. As has been noted in previous WEI TDP responses, the data freeze date and subsequent gap in TDP publication is an issue as often it is over a year out of date by the time it is published. See our comments under question 4 as to how to address these issues.

Furthermore it does not adequately address the reinforcement needs of the system or provide relevant information on all ongoing or planned projects. Needs that have been identified in TESNA

2019 are left unaddressed and candidate reinforcements identified in the SOEF 2030 Roadmap at the end of last year have not been included so the document falls short of the requirement to identify the main transmission infrastructure that needs to be built over the next ten years to ensure we can deliver on the requirements of the Climate Action Plan.

In addition to this, EirGrid are currently working on an update to SOEF to reflect the updated national target of 80% RES-E by 2030. It is critical that the reinforcement works identified by the updated SOEF analysis by EirGrid are fast tracked to ensure 2030 targets are achieved. At the recent WEI annual conference TNEI presented analysis on grid solutions that will be needed to achieve the 80% RES-E target, building on what is already included in the SOEF roadmap. We are happy to present this analysis to the CRU and we would urge that the results are considered by EirGrid in their SOEF update review which is expected to be carried out before the end of the year.

Q2. Section 2 of the TDP 2021-2030 describes investment drivers and system needs. Does the document outline sufficient actions to address the drivers and needs presented? If not, please highlight the specific areas where additional actions may be required.

WEI Response: It is not clear how the needs are progressed into projects and how these projects are then progressed through the early steps of EirGrid's Grid Development Framework. It also not clear why some needs identified in TESNA 2019 are being progressed and turned into projects, while others are not. For example, needs identified in the Dublin region appear to be expedited into projects which are launched and put through the early steps very quickly, while needs and projects in the Northwest (e.g. Coolkeeragh-Trillick New 110kV circuit and RIDP) have stalled or been cancelled.

Q3. The North-West (section 3.2) has, for some time been identified as being an area where there is particular difficulty with network development. Does the TDP 2021-2030 adequately detail the plan to now resolve it?

WEI Response: There is no clear plan or project scope in the TDP to address all of the needs identified in the Northwest.

Transmission Infrastructure development in the North-West has regressed in the last few TDPs. The TDP clearly states that The Northwest Project (CP0800) (formerly RIDP), a Gate 3 ATR that has not progressed beyond Step 2 in 10 years, has been removed while stating that the need for new grid reinforcements remains. However, it still appears in EirGrid's Q4 2021 ATR update that was

published at the end of January 2022. Coolkeeragh – Trillick new 110kV circuit was also removed with little explanation.

Candidate reinforcements identified for the North-West in the SOEF Roadmap should have been included in the final version of the TDP 2021-2030 as the SOEF Roadmap is to be delivered by 2030. It is not clear how these are going to be progressed. For example, a new Clogher - Srananagh 220 kV circuit is identified but it is not clear why it is not being progressed through the Grid Development Framework with the same urgency as the Kildare - Meath 400kV upgrade is, for example.

EirGrid's ECP 2.1 constraint reports include many of the candidate reinforcements from SOEF but there is still a higher level of constraints in the North West than elsewhere on the grid so it is worth noting that as things stand future TDPs may also fall short when it comes to grid development in the North West.

Q4. Would it be helpful to link projects to the specific challenge they are addressing? Examples of this would include the North-West project as identified in the Renewable Integration Development Project and the Dublin Security of Supply constraint as set out in CRU paper CRU/18/228 dated 05 October 2020. If yes, would it be helpful to include the date and source of that challenge identification, and the timeline for addressing that challenge along with the associated project(s) completion date(s)?

WEI Response: Yes, it would be helpful to include that information. It can give a truer reflection of when a project need was confirmed or when it enters step 1 of the grid development framework. Usually, the only way of identifying this is from noting when it first appears in a TESNA and then when it appears in its first TDP. It would also be helpful to include indicative timelines for each step the project will take through EirGrid's Grid Development Framework, along with the key indicative milestone dates for the project so progress can be tracked against a baseline.

It would be very beneficial if EirGrid made available a central database / spreadsheet that could be hosted on their website where TDP projects are listed, including the rating that the reinforcements is being developed and also the constraint area that the reinforcement is located in. There should also be a column to identify if the project is included in the most recent of each of (i) ATR list, (ii) constraints report, (iii) SOEF analysis, (iv) forecast statement. If any projects are included in these but not in the TDP then it would also be beneficial if some commentary is provided as to the reason for this.

This would be a way to centralise all the relevant grid information in one location which would be of more benefit to industry and would be a more effective use of TSO resources. We have made these comments to EirGrid previously and have submitted a detailed feedback document on all their relevant grid publications. We hope this is addressed in the website upgrade that EirGrid are carrying out this year.

Q5. The TDP currently provides general and non-project specific reasons for changes in project status e.g., from Active to On Hold or Removed. Is there a benefit to the transmission system development in providing project specific reasons for these changes, with an exception where there is a commercial sensitivity? If yes, please specify the benefits.

WEI Response: Yes it would be beneficial in the interest of transparency to see the reasons why a project's status can change. Often developers are progressing projects in anticipation of grid being delivered in a region. If something occurs that changes this assumption developers need to be informed to see how it impacts their projects. The information may allow them to more accurately price in risk of grid delivery into the commercial considerations for their project which could lead to more competitive RESS auction bids for projects to the benefit of the consumer, rather than having to operate off 'worst case' assumptions in the absence of information.

Q6. Are there any current network constraints that are not included in the TDP and will not be resolved by the successful completion of projects set out in the TDP 2021-2030?

WEI Response: Yes, there are many which have not been included, this is shown in EirGrid's own TESNA, ECP 2.1 constraints studies and SOEF studies. The level of these constraints will have to be reconfirmed following the SEMC decision on implementation of Articles 12 and 13 from the Clean Energy Package. New reinforcement projects/ network solutions will need to be identified to enable sufficient grid capacity to achieve 80% RES-E by 2030.

Q7. Does this paper raise any concerns around delivery capability considering the challenges ahead? CRU notes that there are 145 live projects in the 2021 report and at the time of the freeze date, 15 were completed and 43 due were scheduled for completion in 2021. 30 are scheduled for completion in 2022. Comparing this to previous reports, the 2020 report showed 11 projects completed in the previous year, the 2019 showed 23 projects completed, and the 2018 report had 26 projects completed

WEI Response: Many of the new circuit and station projects that are completed are those delivered by IPP developers as part of their grid connection works or are smaller line diversions or station upgrade works. A key concern is the time it is taking EirGrid and ESBN to deliver their new circuit projects with many projects progressing slowly or in the case of the Northwest, not progressing at all as outlined in response to Question 3.

In relation to specific projects or regions of the grid, we propose that project delivery management boards be set up for each of the six regions identified in the TES 2019 System Needs Assessment report. These would be similar to the board established several years ago between EirGrid and ESB Networks for the delivery of the Southwest 220 kV projects, which worked very well and would monitor delivery of projects as they moved from TESNA, into the TDP and through EirGrid's six step Grid Development Framework until they are energised. By comparison, no similar delivery board was established in the Northwest and as a result the Renewable Integration Development Project (RIDP) has failed to make progress and has in fact in recent years taken a step backwards. These boards would oversee and ensure the successful delivery of the grid connections and reinforcements needed within the respective areas. We believe there should be representatives from the System Operators, CRU, DECC, and industry representatives which could then feed into a Grid Capacity Advisory Council which would oversee the delivery of SOEF, similar to what was done for DS3. We previously submitted these proposals to EirGrid as part of the SOEF consultation.

Q8. CRU is proposing that the document should include a link to the related PR5 submission from EirGrid. This could constitute information on how many projects are on schedule, or ahead of schedule, relative to that submission. Would respondents consider this link helpful, and if so, is there related information that should also be considered?

WEI Response: Yes, this information would be useful. The spend to date versus approved CAPEX would be useful as it would provide a most useful metric of project progress. If euro amounts cannot be provided, then percentage spend to date versus target amounts would be useful to track progress.

Conclusion

We thank CRU for the opportunity to provide feedback on this consultation and we are available to discuss any of these points if you wish.

Yours sincerely



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