



TRANSMISSION DEVELOPMENT PLAN 2007-2011

REPORT ON PUBLIC CONSULTATION



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REPORT ON PUBLIC CONSULTATION

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1. Introduction

EirGrid as Transmission System Operator (TSO) issued its draft Transmission Development Plan for the period 2007-2011 in accordance with its legal requirements under Statutory Instrument 445 (2000). Regulation 8(6) of SI445 requires the TSO to consult on the plan before submitting it to the Commission for Energy Regulation (CER) for approval:

- (e) The development plan shall be submitted to the Commission for approval.
- (f) The transmission system operator shall-
 - (i) engage in a public consultation process, including any other form of consultation that the Commission may direct, before submitting the development plan to the Commission for approval, and
 - (ii) report in writing to the Commission on the results of that process not later than when submitting the development plan to the Commission

This report is prepared to fulfil regulation 8(6) (f)(ii). It describes the consultation process, provides an overview of the submissions and the TSO's response to the issues raised.

2. Description of Consultation Process

Following a period for review of the initial draft by the CER, the Transmission Asset Owner (TAO) and the Distribution System Operator (DSO), a draft of the plan was posted on the EirGrid website on September 25th 2007 for consultation. The period allowed for consultation was six weeks ending on November 6th 2007.

Notification of the plan and the consultation process was made in the following ways:

- § A news item was placed on EirGrid home page with a link to a page describing the consultation process and a further link to the plan itself.
- § Emails were posted to the TSO's client base and other groups likely to be interested in the plan.

3. Response to the draft Transmission Development Plan 2007-2011

Four submissions were received in response to the consultation on the draft Plan, and are included in Appendix A. These were from:

1. Western Development Commission (WDC);

2. ESB Regulatory Affairs;
3. Industrial Development Agency (IDA);
4. Bord na Móna Energy Limited (BnM).

The full submissions are included in the Appendices.

EirGrid would like to thank all of the respondents who took the time to submit comments on the draft Transmission Development Plan 2007-2011. Comments received were informative and helped us for the redaction of the final report.

The rest of this report deals with the issues raised in the submissions. These are dealt with under a number of category headings in an effort to structure the report. Some issues may equally sit under another heading.

- § Section 4 Welcome for the Development plan and Consultation
- § Section 5 Planning and Development Policy
- § Section 6 Planning Process
- § Section 7 Specific Wind Issues
- § Section 8 Interconnection with other systems
- § Section 9 Specific Issues
- § Section 10 Clarifications
- § Section 11 Issues not Directly Related to the Development Plan

In the following sections, the TSO's responses to the comments made are in italics. It is noted in the TSO's response where changes have been made in the final Transmission Development Plan to take account of the comments and suggestions made.

4. Welcome for Development Plan and Consultation

All respondents welcomed the publication of the draft Transmission Development Plan and the opportunity afforded them by the consultation process to comment on the Plan.

“Bord na Móna Energy Limited welcomes the publication of the draft for public consultation Transmission Development Plan 2007-2011.”

“ESB would like to acknowledge EirGrid for producing a plan which is a progressive improvement on last year's plan.”

“IDA welcomes the opportunity to comment on the Draft Transmission Development Plan, and recognises the ongoing important support of EirGrid in attracting Foreign Direct Investment to Ireland.”

“The Western Development Commission (WDC) welcomes the opportunity to make a submission to the EirGrid Transmission Development Plan 2007-2011 (hereafter referred to as the Development Plan). “

5. Planning and Development Policies

A number of respondents raised issues relating to the TSO's planning and development policies.

5.1 ESB suggested to expand the plan to include a scenario analysis in line with the different demand and generation profiles in the Transmission Forecast Statement and Generation Adequacy Report. This would set an infrastructure investment envelope and could facilitate a more detailed analysis of how the system may develop.

TSO Response:

The context of the TDP is a result of numerous studies including testing the network under different demand and generation profiles, different network options and sensitivity studies on the timing of future approved projects. The Grid Development Strategy, described in section 1.4 "context of the plan", will evaluate multiple scenarios and will feed into future TDPs. Following an assessment of the need, optimum reinforcement projects are selected for the areas outside standard. In general, the main impact of different demand or generation scenarios is on the optimum time for new developments to meet the network requirement.

Our approach for the TDP is to be definite about projects rather than presenting an envelope of developments under different scenarios. This provides a reference document with useful, clear and more definite projects' information.

Note that for each project in the planning process or under construction, the application for planning permission will include a description of other options considered.

5.2 ESB requested that EirGrid works with SONI to produce an all island Transmission Development Plan. WDC commented that the development of the transmission network should be planned on an all-island basis.

TSO Response:

EirGrid acknowledges the concern on this issue and shares the same view. In fact, for the effective operation of the Single Energy Market, the TSOs in Northern Ireland and the Republic of Ireland are formally engaged in joint all-island planning in order to develop, agree and implement common solutions to aspects of the future network in the areas common to the two jurisdictions. Future TDPs will include cross-border/optimised solutions as appropriate for mutual benefit of both the Republic and Northern Ireland. The final TDP makes this clear in section 1.4 "Context of the plan".

5.3 WDC commented that current studies such as Grid Development Strategy, All Island Grid Study and gate 2 integration studies will supersede the developments listed in the Transmission Development Plan 2007-2011 report.

TSO Response:

The Transmission Development Plan 2007-2011 is a snap shot of EirGrid's development planning process. It contains projects that have arisen following numerous studies including connection studies and transmission system studies. Future Transmission Development Plans will incorporate additional projects as approved coming out of a range of planning studies as described in the section 1.4 "context of the plan" including the Grid Development Strategy, Gate 2 connection studies and All Island Grid Study, when deemed appropriate.

5.4 Bord Na Móna questioned whether EirGrid is meeting clause 8(1) c, regarding the Oweninny project "SI60 8(1) (c) to plan the long term ability of the transmission system to meet reasonable demands for the transmission of electricity"

TSO Response:

EirGrid acknowledges BnM's concern and can assure Bord Na Móna that this clause is given a high priority in the transmission development approach. The Transmission Development Plan 2007-2011 is based on developments with a reasonable level of certainty, such as signed generation or demand connection agreement or DSO technical approval.

EirGrid is currently working on its Grid Development Strategy. It will highlight the developments required to meet long term needs including meeting government renewable energy policy. It is expected that following acceptance of the strategy by the stakeholders, EirGrid will initiate developments to meet the future needs. In the case of renewable generation this means that projects may be initiated in some cases prior to connection agreements being signed. The final TDP makes this clear in section 1.4 "Context of the plan".

6. Planning Process

One issue was raised relating to the TSO's planning process as described in Chapter 2.

6.1 ESB suggested performing an independent review of the plan prior to issuing it for consultation.

TSO Response:

EirGrid acknowledges this comment. Prior to issuing for consultation, an initial draft of the plan was submitted for review to the CER, the Transmission Asset Owner (TAO) and the Distribution System Operator (DSO).

In addition, EirGrid gives open public access to information regarding network and market information. We include a comprehensive set of network data, maps and network diagrams that provide details of the grid and how it will be developed on www.eirgrid.com. For those wishing to carry out their own modelling analysis, we offer network data in electronic format on our website.

However, EirGrid does not consider an independent review of the TDP to be appropriate. EirGrid is responsible for developing the transmission system and bringing forward the transmission development plan and the CER is responsible for regulating EirGrid and approving its plan.

7. Specific Wind Issues

The issues raised by several respondents with respect to the Transmission Planning Criteria relate to the assumptions with regard to generation that are made for the purposes of planning studies. In particular ESB is concerned that the TPC does not cater for the fact that wind and conventional generation are unlikely to be at maximum output simultaneously in the same area.

- 7.1 ESB has called for a review of the current Transmission Planning Criteria (TPC) to take account of the significant wind generation that has connected and is planning to connect to the system.

TSO Response:

EirGrid is well aware of the issues with regard to the relatively low load factor of wind generation and the possible diversity between wind generation and conventional generation. Section 3 in the Transmission Planning Criteria makes a reference to the system being studied under credible dispatches. EirGrid is continuously striving to improve its approach to developing the generation assumptions for use in planning studies to take account of these issues. In reviewing its approach to developing generation assumptions for planning studies, and in any review of the Transmission Planning Criteria, EirGrid takes full account of the objective of minimising the overall cost of generation, transmission, distribution and supply to final customers.

8. Interconnections with Other Systems

A number of issues concerning interconnections were raised.

- 8.1 IDA Ireland considers the planned North-South and East-West interconnectors to be critical to improving security of supply, increasing competition levels, and reducing prices. The draft plan does take account of the planned interconnectors, but IDA Ireland would like to see the interconnectors given top priority.

TSO Response:

EirGrid welcomes the support from IDA Ireland for these key infrastructure projects. The strategic importance of the planned interconnectors is a high priority for EirGrid, for the reasons put forward by IDA Ireland.

- 8.2 IDA Ireland would like to see plans for further interconnection.

TSO Response:

EirGrid will analyse the potential for further interconnection with another system as per the White Paper recommendation.

9. Specific Issues

The following specific comments were received.

9.1 Bord Na Móna argued that a new 220 kV line from Castlebar to Bellacorick should be in the plan to connect likely wind, wave and gas fired generation that is likely to follow in the north-West area. Bord Na Móna argued that the transmission network is not developed at sufficient pace to enable the level of generation capacity required to meet the security of supply. Bord Na Móna suggested to accelerate developments to accept new generation in a more timely manner.

TSO Response:

The TSO is currently undertaking a review of its long-term development strategies to meet expected long term needs including the need to connect renewable generation to meet government targets. That review (the Grid Development Strategy) will provide a framework for future development plans and will add new projects for the development of the network to accommodate the required level of renewable generation. The final TDP makes this clear in section 1.4 "Context of the plan".

9.2 WDC suggested the better use be made of Letterkenny-Strabane for the benefit of Donegal.

TSO Response:

EirGrid acknowledges the concern of the respondent for the Donegal area. It is important to note that Letterkenny-Strabane links the Republic of Ireland and Northern Ireland systems at weak points of the networks. Consequently, there is limited opportunity for increased flows on this link without further development to strengthen the networks.

As part of the all Island Single Energy Market (SEM) project, EirGrid and SONI have setup joint structures and arrangements to carryout All Island transmission planning. The objective is to ensure as far as possible that solutions developed to resolve network problems will be optimised for the all island as whole. Future TDPs will include joint solutions as appropriate for mutual benefit of both the Republic of Ireland and Northern Ireland.

9.3 ESB requested that the plan address the issues associated with short circuit levels in Dublin, Cork and the Shannon estuary.

TSO Response:

High short circuit levels are a safety issue and measures must be taken to minimise risk to personnel and to prevent the catastrophic failure of high voltage equipment in stations. EirGrid is actively working to ensure short circuits stay within safety limits in all the parts of the country.

The provision of a series reactor in Poolbeg 220 kV station (CP429), sectionalising the system in Dublin has kept the short circuit level within safety limits in North and East Dublin. The approved fifth transformer (CP264) in Finglas will help to manage the operability of the sectionalised

transmission system. These projects deal with these issues and are included in the Transmission Development Plan 2007-2011. The TSO and DSO are working together to provide additional operational measures to reduce the fault level in Dublin. The final TDP makes this clear in section 3.3.5 and 4.5.

Fault levels in the Shannon estuary are within standard.

Similarly following the connection of the new two CCGT generators in East Cork (see Table 4-9 in section 4 of the plan), the short circuit currents in Cork have to be addressed. EirGrid is actively progressing solutions including a combination of operational measures and switchgear upratings to deal with high fault level in these areas.

- 9.4 ESB argued that the TSO plans in the greater Dublin area would appear to understate the transmission system requirements.

TSO Response:

Since the consultation, a number of grid developments have been approved and will be included in the final Transmission Development Plan 2007-2011, in Appendix G "New Projects since the publication of the TDP draft report".

A project to construct a new 220 kV station named Finnstown has been initiated. The new station south of Lucan will be looped into the Inchicore-Maynooth No. 1 and No.2 220 kV lines. This station will serve the western part of Dublin.

Projects to install additional transformer capacity in Carrickmines 220 kV and Inchicore 220 kV station have been initiated.

The TSO is carrying out studies, in consultation with the DSO, for the strategic long-term development of the network in the Dublin area to meet the needs of the city and its growing environs.

- 9.5 IDA Ireland suggested that the TDP should have a clear objective of seeking to contribute to closing the significant gap of the Irish electricity prices and the European average.

TSO Response:

EirGrid is committed to developing an economical and efficient electricity transmission system by selecting the least cost technical solutions, in line with Statutory Instrument 60 (2005), entitled "European Communities Internal Market in Electricity". Note that the cost or price of electricity is made up of several different components. On average, the transmission costs account for about 10% of the overall price that consumers see. EirGrid has no direct control over the price of the other components.

- 9.6 IDA Ireland suggested that the TDP should facilitate as much as possible non dispatchable embedded generators connected at a demand customer site. IDA Ireland suggested to take full account of the merits of accommodating innovative energy projects.

TSO Response:

The TSO does facilitate connection of third-party generation whether for on site power need or for export purposes and when future connections are confirmed it takes their impact into consideration when evaluating network development requirements.

10. Clarifications

A number of issues raised indicated that certain clarifications are required.

10.1 ESB and WDSC commented that a five year planning horizon is too short.

TSO Response:

Respondents expressed a genuine concern for the planning horizon of the Transmission Development Plan. The legislation under which the TDP is prepared, Statutory Instrument 445 (2000), requires the TSO to produce a plan outlining its transmission development requirements over the following five years. However, the TSO does consider the long-term needs of the network, as referred to under the heading "Evaluate Network Performance" on page 2-6 of the plan. Many of the major projects in the plan deal with network issues emerging beyond 2011. In addition, the plan identifies potential longer-term development requirements depending on certain drivers occurring. The TSO is currently engaged in a review of its long term strategy. The review, called the Grid Development Strategy, will provide a long-term horizon context for future Transmission Development Plan. The final TDP makes this clear in section 1.4 "Context of the plan".

10.2 ESB raised the following points:

Section 3.3, paragraph '5' of the plan refers to the network being designed to accommodate existing generation and known additions. It is understood that this refers to signed Connection Agreements.

Section 3.3.2 'New Renewable Generation' states that the TSO can and will develop necessary plans to accommodate the prospective large amounts of wind generation in line with Government targets. EirGrid should expand on how these plans will be developed if the intent is to move away from the current strategy of waiting until generation connection agreements are signed.

TSO Response:

It is correct to state that existing generation and known additions does refer to signed connection agreements.

EirGrid is currently working on its Grid Development Strategy. It will highlight the developments required to meet long term needs including meeting government renewable energy policy. It is expected that following acceptance by the stakeholders of the strategy, EirGrid will initiate developments in a timely manner to meet the future needs. In the case of renewable generation this means that projects may be initiated in some cases prior to connection agreements being signed. The final TDP makes this clear in section 1.4 "Context of the plan".

10.3 Bord Na Móna questioned the last paragraph of “North West Area” discussion in Section 4.5 - Regional Benefits - of the plan.

TSO Response:

The last paragraph will be clarified in the final Transmission Development Plan; the last paragraph will state that ‘Further developments in the North-West should only be required within the plan period in the event that new as yet uncommitted (i.e. unsigned connection agreement) generation or demand developments emerge or as an outcome of the Grid Development strategy’.

11. Issues not directly related to the Development Plan

Finally, one issue raised was not directly related to the Transmission Development Plan and if appropriate will be dealt with by the TSO outside of this process.

11.1 Bord Na Móna argued that during the Gate 2 formation, the Oweninny project was excluded arbitrarily.

TSO Response:

This issue is not directly related to the Transmission Development Plan, so is not responded to here.

Appendix A Full Responses to the Draft Transmission Development Plan

1. Western Development Commission (WDC)
2. ESB Regulatory Affairs
3. Industrial Development Agency (IDA)
4. Bord na Móna Energy Limited (BnM)

1. Submission from Western Development Commission (WDC)



Public Consultation
on the EirGrid
Transmission Development Plan 2007-2011

Submission from the
Western Development Commission
November 2007

Western Development Commission

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Introduction

The Western Development Commission (WDC) welcomes the opportunity to make a submission to the EirGrid Transmission Development Plan 2007-2011 (hereafter referred to as the Development Plan). The WDC has been working in the last few years to highlight electricity infrastructural development and regulatory issues as they affect the Western Region. This submission on the Development Plan provides another opportunity to continue this work.

The WDC is a statutory body established by government to promote, foster and encourage economic and social development in the Western Region¹. Established in 1997, the Commission was put on a statutory basis in February 1999. One of the functions of the WDC is regional policy development. In doing this, the WDC seeks to ensure that government policy reflects the needs of the region across such areas as infrastructure, natural resources, industrial and rural development. It also tracks the implementation of policies and recommends adjustments as appropriate.

In monitoring government policy and associated regulation, and ensuring that these reflect the needs of the Western Region, the WDC regards the provision of a quality electricity network and supply as important elements of the infrastructure required to underpin the economic development of the region. Hence the WDC monitors and comments on developments and policies for the electricity sector.

In this submission we make comments about the importance of electricity provision in regional development and some general points on the Transmission Development Plan 2007-2011.

The importance of electricity for regional development

The WDC believes that an efficient, resilient energy infrastructure is crucial for regional development and welcomes the recognition given to this in the Development Plan. Given the importance of energy infrastructure in underpinning development we have been concerned that regions such as the west, with low population densities and spatially dispersed industrial development, are given due consideration in the development of electricity transmission infrastructure.

Existing industry needs robust, reliable electricity supply, and infrastructure which is capable of meeting any increase in their electricity need. To allow further development, the Western Region also needs to be able to attract new industries. The internationally traded services (ITS) sector is seen as a significant growth area for the future in the Western Region. This sector is also very power dependent, particularly in terms of reliability. In order for the Western Region to be in a position to compete with other parts of Ireland for investment and employment, there needs to be sufficient electricity supply capacity available in order to attract new industries and services to locate or to start up in the Region. Without good capacity and reliability such businesses are less likely to consider regional locations.

¹ Counties Donegal, Sligo, Leitrim, Roscommon, Mayo, Galway and Clare.

The WDC has previously raised concerns with both the Commission of Energy Regulation (CER) and ESB National Grid (ESBNG) in relation to infrastructure and supply, and has emphasised that appropriate investments must be made to allow the region to compete in attracting industry and employment.

In much of the region there is little choice of energy supply (e.g. natural gas) and hence the Western Region is particularly reliant on electricity. It is thus important that electricity users in the region can plan for future developments confident that supplies will improve and that their remoter locations will not militate against them in terms of electricity provision and cost.

General Comments on the Development Plan

The WDC welcomes the major investment which has taken place in the electricity transmission grid in recent years, and we recognise the benefits which it has brought to our Region. We also welcome the publication of this draft Development Plan which describes the process of planning and development of electricity transmission in Ireland for the next five years. We do have, however, a number of general comments about the Development Plan.

Once again, as stated in our submission on the previous Development Plan (2006-2010) we note that the period covered by the Development Plan (to 2011) is relatively short and that the Development Plan is based on short term projections of demand and future transmission needs. There are a number of studies due to be completed which will have significant implications for the planning of the transmission network and its future development. These include the Grid Development Strategy, the All Island Grid Study and the Gate 2 Integration Study. The findings of all of these studies will affect the planning of the transmission system in the future and so it is clear that there will be important developments in transmission planning in the coming year and that this Development Plan will be superseded by the changes envisaged in these studies.

The Grid Development Strategy, the All Island Grid Study and the Gate 2 integration Study are all of particular important to the Western Region where there is already significant wind generation, and great potential for more wind generation and in the longer term for wave generation. The Development Plan (5-5) notes that the connection of Gate 2 wind farms will have significant impacts on the transmission system in the North West. The WDC awaits the outcome of these studies with interest, and expects that the developments which are planned on the basis of these studies will recognise the growing importance of generation in our Region.

The WDC particularly welcomes the decision of EirGrid to prepare a long term "Grid Development Strategy". Investment in electricity transmission infrastructure is, a long term investment with the assets having a useful life of about 40 years (and longer with refurbishment). It is therefore important that long term electrical provision issues and future energy needs, generation issues and potential patterns of consumption provide a context for the investments included in future Development Plans.

We recognise that it was not possible to capture the findings of these studies in this Development Plan. We would expect that their findings should be incorporated into transmission planning as soon as possible and be fully incorporated into the next Development Plan.

All Island Planning

We believe that planning the development of the transmission network should be done on an All-Island basis and that this would allow for improved electricity infrastructure and capacity in border counties.

The WDC believes that there is considerable potential to improve electricity transmission and supply in Donegal by increased use of the Strabane/Letterkenny interconnector, and also by planning electricity transmission on an All-Island basis. While the emphasis in the Development Plan is on the North South interconnector and the planned interconnector with Great Britain, we believe that there is potential for improvement to the network in the North West by increasing the potential and use of the smaller interconnectors. Coolkeeragh power plant is very close to Donegal and could be in a position to provide stability in the North West in the context of the growth of wind generation in Donegal and neighbouring counties.

We would welcome more recognition of the all island nature of the transmission system in future Development Plans.

Conclusion

The WDC welcomes the publication of the draft Development Plan and are pleased to have the opportunity of making a submission on it. We are happy to provide further information or examples in relation to this submission, should they be required.

**Western Development Commission
November 2007**

If there are any queries in relation to this submission, please contact

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2. Submission from ESB Regulatory Affairs

ESB Response to EirGrid Consultation on Draft Transmission Development Plan 2007-2011

Executive Summary

On 25th of September 2007, EirGrid published for consultation the Draft Transmission Development Plan, which outlines how EirGrid intends developing the transmission system over the next 5 years. ESB has reviewed this document with the understanding that the plan follows from EirGrid's development strategy and seeks to implement system development based on the evolving generation and demand mix and guidance from other primary documents (Transmission Forecast Statement, e.g. transmission planning criteria etc.) ESB would like to acknowledge EirGrid for producing a plan which is a progressive improvement on last year's plan.

The key points which ESB wish to make are as follows:

1. Extend the planning horizon to 10 years (notwithstanding your Grid Development Strategy study). With such a horizon, there would be more opportunity for stakeholder input and 10 years is closer to a reasonable planning horizon than 5 years which is mainly an implementation horizon;
2. Expand the plan to include a scenario analysis in line with the different demand and generation profiles in the transmission forecast statement and generation adequacy report. This would set an infrastructure investment envelope and could facilitate a more detailed analysis of how the system may develop;
3. Obtain a peer review of the plan prior to issuing it for consultation;
4. Review the Transmission Planning Criteria in light of substantial wind development and issue them for consultation;
5. Work with SONI Ltd to produce a single plan for the all-island transmission system and
6. Address the issues associated with short circuit levels in Dublin, Cork and the Shannon estuary as a matter of priority:

Plan Content

This year's plan is a progressive improvement on that produced in 2006. In particular, chapter 3, 'Context for Network Development' provides more detailed information on the status of new thermal and renewable generation connections as well as greater detail on the condition of the network.

ESB acknowledges that the European Communities (Internal Market in Electricity) Regulations, (SI 445/2000) calls for a 5 year plan but we regard this as a *minimum requirement* and accordingly EirGrid should go further. ESB would like to see the plan evolve to provide greater emphasis and discursive detail of future developments beyond the 5 year horizon discussed in chapter '5'. To this end, we recommend that the plan have a longer lead time of 10 years for example in line with section 2c of article 10 in the proposed amendment to directive 2003/54/EC as issued by European Commission on 19th of September 2007.

Scenario Analysis

It would be useful and informative to use the scenario analysis given in the Transmission Forecast Statement and Generation Adequacy Report when building up a picture of the future transmission system infrastructure. Further cross referencing between the plan and primary documents on which the plan is based would provide improved context to issues considered in the document.

Independent Review

There is no party in the industry other than Eirgrid who possesses the capability to test the adequacy or efficacy of the plan. ESB recommends the appointment of an independent body with the capability to assess the adequacy of the measures proposed by EirGrid and the efficacy with which these measures are being implemented prior to issuing the plan for public consultation. The report of this body should be published.

Transmission Planning Criteria

The points below are made in the context that the Transmission Planning Criteria (TPC), which were last updated in October 1998, are at the heart of transmission planning and have never been subject to a stakeholder consultation. It is timely that the TPC be reviewed and opened for public consultation.

Section 3.3, paragraph '5' of the plan refers to the network being designed to accommodate existing generation and known additions. It is understood that this refers to signed Connection Agreements.

Section 3.3.2 'New Renewable Generation' states that the TSO can and will develop necessary plans to accommodate the prospective large amounts of wind generation in line with Government targets. EirGrid should expand on how these plans will be developed if the intent is to move away from the

current strategy of waiting until generation connection agreements are signed.

The document refers to the TPC in Section 2.3 and also to SI445 8(3) which states that in discharging its function, the transmission system operator shall take into account the objective of minimising the overall costs of generation, transmission, distribution and supply to final customers.

The planning criteria (section 2.1.1) refer to “more probable contingencies” and specify both dynamic and steady state limit-criteria which must be satisfied, for such more probable contingencies. The planning criteria (section 2.1.2) also refer to “less probable contingencies” and specify that the system should be able to withstand such more severe but less probable contingencies without going into voltage collapse or uncontrolled cascading outages.

Given the very significant potential increases in wind generation over the coming years and the intermittent nature of wind generation, there will be an increasing requirement for reserve capacity for wind generation. It is widely recognised that wind generation makes very little contribution to capacity adequacy at the winter peak, due to the high coincidence of low output from wind generation during many peak-load situations in winter. For most situations, there reserve capacity will be required to generate, but both will not be required at the same time. Given the significant increases in wind generation since the TPC were last revised, there is an urgent requirement to review the planning criteria to take into consideration the very low probability of requiring all dispatchable generation in a region to run and export its full output at the same time as a high output from wind generation in the same region. This must be considered as a "less probable contingency" if not a very low probability scenario. If the planning criteria fail to recognise the mutually exclusive transmission requirements for wind generation and its associated reserve capacity, then:-

- Additional capital intensive transmission infrastructure will be installed, which may never be required in reality - adding to the costs to final consumers.
- Applications for new generation connections, (both renewable and thermal), will be delayed.

Such outcome would not be consistent the requirements of SI445 is so far as the objective of minimising the overall costs of generation, transmission, distribution and supply to final customers would not be well served.

Consequently, ESB requests that consideration be given to reviewing the current Transmission Planning Criteria in the context of significant increases in wind generation on the system and the very low probability of requiring all

thermal generation to operate at the same time as a high output from wind generation.

Single All Island Plan

Given the development of the single electricity market, ESB believe it is timely that a single transmission development plan be produced for the all-island transmission system. This will help ensure there is consistency in development approach and a common understanding of the requirements of each transmission system. This agrees with a strategic goal in the DCMNR/DETI "All Island Market - A Development Framework" which was due to be implemented in the period 2004-2007.

Short Circuit Levels

Section 5 of this report details issues associated with overloading and short circuit levels in the Dublin area. The high transmission short-circuit levels in the Dublin region will impact on the underlying 110kV and 38kV networks and reduce the ability to build new generation here. These issues appear to represent significant challenges for which an extensive and immediate implementation works programme is required. The areas of Cork and Shannon estuary are also highlighted as areas with high short circuit levels which require consideration.

Conclusions

ESB welcomes the opportunity to comment on this plan and looks forward to feedback from EirGrid on the points raised above. We remain at your disposal to engage in dialogue on any aspect of our response.



Fergal McNamara

ESB Regulatory Affairs, Electricity Supply Board.

Date: 8/11/07

Addendum to Submission to Transmission Development Plan

The DSO envisages a build programme of up to seventeen 110kV substations in the Greater Dublin area to accommodate demand growth over the development plan period. This level of infrastructure development will require significant deep reinforcement work on the part of EirGrid. The only new substation outlined in the development plan is the 220kV substation at Balgriffin, north Dublin. In the context of the load developments which DSO is expecting for this area, the TSO plans would appear to understate the Transmission System requirements.

3. Submission from Industrial Development Agency (IDA)

IDA Ireland comments to EirGrid on the Draft Transmission Development Plan 2007-2011

1) Introduction

The Foreign Direct Investment (FDI) sector is a major contributor to the Irish economy and Ireland's energy infrastructure is a critical component in the overall value proposition for attracting high quality FDI.

IDA Ireland made a submission to the Energy Green Paper in November 2006. In this submission IDA Ireland identified 3 key issues:

- Guaranteed security of supply, in terms of an assured adequacy of generating capacity.
- Internationally competitive energy prices for Manufacturing and Internationally Traded Services companies.
- A grid infrastructure that fully facilitates regional development.

And stated that:

“On all these fronts the key benchmark should be Ireland's relative position in an international context. IDA Ireland competes in an increasingly global FDI market and we must not allow an issue as fundamental and important as energy, to lag behind what is available in other countries in terms of cost, security of supply and infrastructure quality”.

Over the last 10-15 years Ireland has experienced rapid economic and population growth, and a transformation from a low wage/low cost economy, towards a high value and knowledge-based one, where infrastructure quality on a par with the most advanced economies in the world is a prerequisite for success.

It is imperative therefore that the Transmission Development Plan takes the perspective of achieving best international practice and makes good provision for maintaining Ireland's international competitiveness into the future. In this context IDA Ireland would make the following comments on the Draft Transmission Plan.

2) The Draft Transmission Development Plan 2007-2011

- The Transmission Development Plan makes reference to the need to minimise costs to customers. IDA Ireland believes that this objective should include taking account of the significant differential that has developed between Irish electricity prices and the European average over recent years, and the plan should have a clear objective of seeking to contribute to closing this gap.

- The Transmission Development Plan should make it a priority to facilitate, as much as possible, the need to encourage a high level of competition in the Irish electricity supply sector.
- IDA Ireland supports the prioritisation of transmission investments in line with the National Spatial Strategy (NSS). Utility intensive FDI projects tend to gravitate towards the Gateway and Hub locations. Therefore, having very strong energy infrastructure in these locations, coupled with capacity available ahead of demand, is invaluable in both developing the Gateways and Hubs, and maximising FDI investment into Ireland.
- The most recent EirGrid Transmission Forecast Statement outlines the current capacity for additional demand across the regions. Balanced regional development is a cornerstone of IDA Ireland Strategy and having a strong electricity infrastructure in all regions is an absolute prerequisite to attracting high quality FDI.
- IDA Ireland notes and welcomes the focus of the Transmission Development Plan on improving electricity transmission infrastructure in the Border Midlands and West Regions.
- IDA Ireland considers the planned North-South and East-West interconnectors to be critical to improving security of supply, increasing competition levels, and reducing prices. The draft plan does take account of the planned interconnectors, but IDA Ireland would like to see the interconnectors given top priority.
- As well as the currently planned North-South and East-West interconnectors, the Transmission Development Plan should make full provision for future significant additional interconnection with the UK and mainland Europe, so that they can be implemented effectively and quickly.
- The Transmission Development Plan takes account of the need to accommodate a higher proportion of renewable energy on the system. This should include provision such that FDI companies, who are expressing growing interest in generating some of their own power, are facilitated as much as possible.
- It is particularly important that the Transmission Development Plan improves the ease with which FDI companies, who generate some of their own power, can sell into the grid and share electricity with adjacent businesses entities.
- The Transmission Development Plan should take full account of the merits of accommodating, as much as possible, further energy projects along the lines of the Dundalk 20/20 renewable energy zone concept.

3) Concluding remarks

IDA welcomes the opportunity to comment on the Draft Transmission Development Plan, and recognises the ongoing important support of EirGrid in attracting Foreign Direct Investment to Ireland.

IDA Ireland
November 2007

4. Submission from Bord na Móna Energy Limited (BnM)

**Submission by Bord na Móna Energy Limited to EirGrid
on the
Draft Transmission Development Plan 2007-2011**

Bord na Móna Energy Limited welcomes the publication of the draft for public consultation Transmission Development Plan 2007-2011. While we do not have any issue with most of the document there are a number of parts that cause us considerable concern. On the one hand it is encouraging to see the number of development projects in the plan, which are essential for the growth of the electricity system overall. However, some of our major concerns centre on the capability of the system, in a timely fashion, to accept new generation.

Under the median demand growth scenario in the EirGrid Generation Adequacy Report 2007-2013, peak demand growth is forecast at an average of 195 MW¹ per year over the period of the report. This growth will need to be serviced by additional generation capacity on the system. However, Section 3.3 - Generation - of the plan states that *'The results of the transfer capability analysis in the TSO's Transmission Forecast Statement 2007-2013 indicate that spare capacity in the network has effectively been used up by generation connections and that at many locations the addition of even small amounts of new generation would require deep reinforcements.'* This leads to a concern as to whether the network is being developed at a sufficient pace to enable the timely delivery of generation capacity. To meet the Government's policy target of 33% of electricity consumption from renewable sources by 2020 it is forecast that a considerable amount of wind generation will need to be connected to the system. In addition to this a significant amount of new thermal generation capacity will also be required to meet demand growth and forecast plant closures.

To cope with the growth in demand, increased capacity of renewable energy sourced generation, and the extensive lead times for electricity infrastructure developments we believe that the existing projects in the plan need to be accelerated and new projects be included to enable the system accept new generation in a more timely manner.

Bord na Móna Energy Limited has lodged five separate grid connection applications, which combined represent the full complement of capacity, for connection of its planned Oweninny Wind Farm at Bellacorick in County Mayo. The target connection dates specified in the first four applications ranged from October 2005 to November 2008 and the target connection date for the fifth application is November 2010. The project has full planning permission for 180 turbines and, possibly uniquely in the country, also has full planning permission for three 110 kV overhead lines to connect the farm to Bellacorick substation, which is the nearest transmission substation to the site. The site for the new farm is located adjacent to the existing Bellacorick Wind Farm which has been operating successfully since 1992 and which is probably one of the best indicators of the viability of a farm on the site.

¹ Generation Adequacy Report 2007-2013: Table 3-1 Average annual forecast values for 2006-2013, for GDP and PCGS

The first four grid connection applications for the project fell just outside of the 500 MW which were selected automatically by date order from the applications queue for processing in Gate 2. Had the c. 1,300 MW of capacity eventually included in Gate 2 been selected entirely by date order in the applications queue all four of these applications would have been included for processing. The Gate 2 process resulted in projects, which did not have planning permission at the time they were first included in Gate 2, being selected rather arbitrarily to have their grid connection applications processed ahead of other projects that were both ahead in the applications queue by date order and also had full planning permission. In essence, the grid connection application process, combined with the lack of adequate infrastructure, has frustrated the development of the Oweninny project to date.

A pre-feasibility study carried out by ESB National Grid in 2001 indicated that installation of all of the permitted capacity of Oweninny Wind Farm would require a 220 kV line to connect the site to the 220 kV system. We accept that reinforcement of the network will be required to accommodate the full permitted capacity of the project. In this context we acknowledge and commend the inclusion by EirGrid in its Transmission Development Plan 2006-2010 and the current plan of a new line to be built from Tonroe to Castlebar. Allied to this however, we contend that the exclusion of the Oweninny project from Gate 2 has resulted in an unacceptable delay in including the infrastructure necessary to connect the project in the TSO's firm plans for network improvement. This is a very significant issue in the context of the lead time required to develop transmission infrastructure projects.

Section 2.1 - Statutory and Legal Requirements - of the plan which details some of the regulations that the TSO has taken account of in preparing the plan includes reference to section 8(1)(c) of SI 60 which states *'to plan the long term ability of the transmission system to meet reasonable demands for the transmission of electricity;*' Figure 2-2 Typical Lead Times for Development Projects in the plan shows the lead times for the phases involved in TSO development projects and shows between seven and eight years for completion of a 220 kV line. In the context of the current approach to processing of grid connection applications from renewable energy projects we consider that a project that has already got full planning permission and has applied for grid connection can justifiably be considered a reasonable demand for the transmission of electricity and should trigger the inclusion of the associated necessary infrastructure to connect the project in the Transmission Development Plan. This is particularly pertinent considering that some projects in Gate 2, that did not have full planning permission, have already had connection applications processed and offers issued which will lead to inclusion of the infrastructure to connect them in the TSO's plans.

At the recent EirGrid Customers' Conference Louis Fisher made a presentation titled 'Grid Development Strategy'. In particular he showed two slides titled 'Geographic Distribution of Renewables' and 'Generation Location Scenarios'. The first slide mentioned showed a figure of 880 MW of land based renewables capacity in west Connacht and a further 336 MW of ocean-based capacity. Some 160 MW of this ocean-based capacity is off the Mullet peninsula in County Mayo which, according to the Irish Wave Energy Resource Atlas, has possibly the best wave energy anywhere around the coast. Should a generation facility of the scale shown on the slide be developed to harness the wave resource in this area the most likely connection point

to the existing electricity infrastructure appears to be Bellacorick. The second slide mentioned showed likely generation locations based on the gas network, major ports and brown field sites. Bellacorick was shown on the slide as a likely location for a peaking plant. Furthermore, considering that the gas network has already been extended to the west to connect the Corrib field when it comes on stream, the location has potential for other types of thermal generation also.

However, despite potential for electricity generation from at least three different technologies which could connect to the electricity network at Bellacorick Table 7-4 of the Transmission Forecast Statement 2007-2013 shows capacity for only 80 MW at this location in 2010 and 2013. While this is a significant improvement on the 10 MW shown for 2008, Gate 2 projects may absorb some of this capacity and again leave the system at its limit. In either case it is inadequate for the natural resource that could be harnessed in the area and does not allow the maximisation of the potential of other infrastructure at the location. In Section 2.2 - Development Objectives and Strategies - the document outlines that *'The TSO seeks to find single development projects that meet multiple network requirements where possible.'* We suggest that a 220 kV line from Castlebar to Bellacorick would meet this criterion and many others when the objectives of the National Spatial Strategy are taken into consideration.

Considering:

- Y the lead time required for the development of electricity infrastructure
- Y that Section 4.5 - Regional Benefits - of the plan, specifically the part covering the North-West, the last paragraph states that *'Further developments in the North-West should only be required within the plan period in the event that new as yet unknown generation or demand developments emerge'*;

we have to question whether EirGrid is meeting clause 8(1)(c) of SI 60. This is compounded by the fact that Appendix E of the Plan which shows the text of regulation 8(6) of SI 445 which states that *'The development plan shall take account of- (i) existing and planned generation, transmission, distribution and supply,...'*. Bearing in mind that the target connection dates for the grid connection applications for the Oweninny Wind Farm project are all within the timeframe of the current plan, and the lead time for line development, we are perplexed as to why an extension of the 220 kV network to Bellacorick is not included in the plan. We sincerely hope that it does not take an as yet *unknown* generation or demand project to drive the extension of the 220 kV network to Bellacorick.

On the basis of the above we contend that the development of a 220 kV line from Castlebar to Bellacorick, linking in to the planned Tonroe to Castlebar line, should be included in the current plan either as a discrete development or as part of a wider extension of the 220 kV network in the region.

We trust that you will give our view on the specific aspect of the plan covered due consideration and should you wish to explore further any of the issues raised we are available to meet and discuss them.



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