ELECTRICITY DEVELOPMENT APPLICATION TO
AN BORD PLEANALA
(REG NO. PL11.VA0015)

ORAL HEARING

LAOIS-KILKENNY REINFORCEMENT PROJECT

TRANSMISSION STANDARDS

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1. Qualifications and Experience

1.1. My name is Mark Norton. I hold an honours degree (BSc) in Electronic Engineering from Anglia Polytechnic University, Cambridge (2000). I am a member of the Institute of Engineering and Technology.

1.2. My current position in EirGrid is Manager of Technology and Innovation. I have 24 years of engineering experience, including approximately 8 years in construction and maintenance, with the subsequent sixteen years in the design and planning of electricity networks and associated facilities. I have spent over 10 years working for EirGrid, and prior to this worked in Eastern Electricity (and its subsequent operating names) one of the regional electrical distribution companies in the UK.

1.3. I was initially employed by Eirgrid between 2002 and 2006, as the team leader for the Implementation section within Power System Planning, responsible for studying the transmission network and then developing suitable reinforcements. Subsequent to this I was the EirGrid Manager for Transmission Access Planning from 2006 to 2009, responsible for planning the connection and associated reinforcement requirements for generation and large demand customers. From February 2009 up to June 2013, I moved to the role of the Manager of Technology and Standards and was responsible for the creation, review and management of the planning standards of the development of the Irish transmission network.

1.4. I have been responsible for and worked on a number of EirGrid standards, policies and methodologies, and am EirGrid's representative for European planning policy work, including:

- Drafting of the European Planning Standards network code as a member of the Electrical Planning Standards Group, European Network of Transmission System Operators for Electricity[i] ; and

[i] ENTSO-E the European Network Transmission System Operators – Electricity, comprises 42 transmission system operators from 34 countries; one of its responsibilities is to create network codes which through the comitology process are enshrined into European law.

- Functional requirements and standards for transmission substations in the RoI transmission network, including 400/220kV stations and proposal for new 400/110kV stations

1.5. In addition, the team members of the Technology and Innovation section have a range of experience in substation equipment, overhead Line, AC underground cable and/or DC technology.

1.6. My role in the preparation of the documents supporting the application for planning approval of the Laois – Kilkenny Reinforcement Development involved the provision of the technology standards and specification which contributed to the design of this transmission station project.

2. Network standards application in the Laois – Kilkenny reinforcement development

2.1 EirGrid is required to develop the network in compliance with the Transmission Planning Criteria under its TSO licence and the Grid Code (current version 5 issued 7/10/13).

2.2 The Transmission Planning Criteria ensures the co-ordinated development of a reliable, efficient, and economical system for the transmission of electricity for the long term benefit of transmission users.

2.3 The criteria are deterministic in nature, and balance the minimum acceptable network reliability for users and the cost of network development. Therefore when a need is identified the criteria by default have already established whether the cost of improvement is economically justified to improve the network reliability to a level which is in compliance with the criteria.

2.4 Possible reinforcement options are assessed with the criteria to ensure they resolve the needs on the network, but the criteria do not select which of the options should be selected. However, the level of mitigation which an option provides to the need for further reinforcement in future years will be used in the selection process.

2.5 As part of its licence conditions, EirGrid as TSO must also plan the network plan the long term ability of the transmission system to meet reasonable

demands for the transmission of electricity. This extends beyond just compliance with the Transmission Planning Criteria to examining the ability of the network to ensure that the network is robustly designed and flexible to the future needs of the network.

3. Project Background and Description

3.1 I now wish to deal specifically with the electricity development application, which is the subject of this Oral Hearing. In the interest of brevity I do not propose to repeat most of the material already included in the application documents or in other material already submitted in evidence to this Oral Hearing.

3.2 As part of its role to plan the electricity transmission network, EirGrid (and prior to EirGrid's formation, the ESB) has been investigating new technologies, equipment, standards, etc to develop the transmission network, which meet international best practice and have a proven track record. These investigations have been continuous since the development of the first piece of the transmission network c.1930.

3.3 In recent years, the increased pace and diversity of development and technologies, and the challenges brought forward to operate a much more dispersed, complicated and varied generation and load profile, resulted in the formation of sections within EirGrid dedicated to examining appropriate technology and standards to be considered for use in the transmission system.

3.4 Principally, it should be noted that the development of any piece of the high voltage (HV) transmission infrastructure has an expected operational life in excess of 50 years[ii].

3.5 Therefore, the proposed development must not only meet the immediate needs of the project but must be flexible for many decades to come.

3.6 On balance, the complexity and cost of establishing new transmission stations and optimum transmission planning requires the development of sustainable

[ii] Expected asset life of transmission equipment in CER Decision Paper 10/206 for Price Review 3

stations with expansion capability in order to accommodate future needs, minimises overall development and therefore cost effective.

3.7 This approach avoids a proliferation of circuits and multiple stations in a regional area, and is thus a much more sustainable development methodology.

3.8 Accordingly, it is international best practice and standard practice in EirGrid to develop stations with expansion capability as standard to a common functional design. This allows for proven standard designs, with cost effective procurement of standard components and construction services.

4. Submissions and Responses

4.1 The relevant issues raised in the submissions which relate to transmission standards, I wish to address now. Those that I must address are detailed below –

Submission / Issue 1[iii] - Expansion Capability

4.2 A number of submissions claim that the development of a station with expansion capability which is not specified in the documents supporting the application for planning approval of the Laois – Kilkenny Reinforcement Development is not appropriate.

Response:

4.3 It is standard practice both in EirGrid and internationally to develop transmission stations which provide the potential for further development.

4.4 Whilst in some instances, potential needs for part of this expansion capability may be known and explained when a planning application is made, given the expected long term life of the station it would be failing of EirGrid's obligations as the licensed Transmission System Operator not to provide for expansion capability.

4.5 These obligations are:

[iii] Submissions made by Sean Fleming T.D., James Deegan, Seamus and Stephanie Fingleton, Marie Fingleton

'to operate and ensure the maintenance of and, if necessary, develop a safe, secure, reliable, economical and efficient electricity transmission system, … and having due regard for the environment;'

4.6 EirGrid's utilises standard designs of transmission stations to ensure these stations are adequately sized to account for the future but are not of a size which would present a risk to the security and reliability of the network. This makes efficient use of the station site and its capital investment.

Submission/Issue 2[iv] - Potential for Future Developments

4.7 A number of submissions claimed that the development of a station with expansion capability is to facilitate the development of renewable generation (windfarms, etc).

Response:

4.8 The Laois – Kilkenny reinforcement project elements are not being developed, whether in whole or in part, to facilitate the connection of renewable generation.

4.9 As stated by my colleague Mario Duarte, the need for this project arises from the necessity to improve quality and security of supply in the south-eastern region and, particularly, across counties Laois and Kilkenny.

5. Conclusion

5.1 The proposed solution of a 400 kV station and the associated 110 kV circuit and station developments are in line with EirGrid's statuary obligations and maintain compliance with the Transmission Planning Criteria. Consequently the project is not only needed, but is sustainable and proportionate.

5.2 The reinforcement provides a robust solution that meets the immediate and foreseeable future needs for the south western region, as identified by my colleague Mario Duarte.

[iv] Submissions made by John Whelan [Senator], Seamus and Stephanie Fingleton, Concerned Residents, c/o Éamonn Brennan and Chris Miller