An Bord Pleanála

Inspector's Report
ABP-310828-21

Development	Proposed installation of a synchronous compensator compound and associated ancillary equipment.
Location	South of Belcamp 220kV substation, Belcamp, Dublin 17
Planning Authority	Fingal County Council
Type of Application	Pre-application consultation
Prospective Applicant	Statkraft Ireland Ltd.
Inspector	Donal Donnelly

1.0 Introduction

1.1. The Board received a request on 12th July 2021 on behalf of prospective applicant, Statkraft Ireland Ltd., to enter into pre-application consultations under Section 182E of the Planning and Development Act, 2000 (as amended) in relation to the proposed development of a synchronous compensator compound and ancillary equipment, including a 220kV substation at Belcamp, Dublin 17.

1.2. The primary purpose of the pre-application consultation is to address the issue of whether or not the proposed development constitutes strategic infrastructure for the purposes of the 2000 Act, as amended by the Planning and Development (Strategic Infrastructure) Act, 2006. This Report provides an overview of the proposed project, the relevant legislative provisions, and an opinion as to whether or not the proposal is strategic infrastructure development.

2.0 Site Location and Description

2.1. The site of the proposed development is located at Belcamp to the north-east of Dublin City. The R139 forms the southern boundary of the site, and the existing 220kV Belcamp substation is immediately to the north. The Mayne River traverses the site from west to east.

2.2. The site and surrounding lands are zoned "HT – High Technology" in the Fingal Development Plan, 2017-2023. The R139 forms the boundary between Fingal County Council and Dublin City Council.

2.3. Access to the existing 220kV substation is further to the west along the R139. The substation is screened from the public road by mature hedgerow and trees. The stated area of the site is 2.9 hectares.

3.0 Proposed development

3.1. The proposed development comprises the following:

- A high inertia synchronous compensator (HISC) compound containing 1 no. HISC unit enclosed within a 12.1m high (max) structure and supported by 8 no. electrical equipment containers; main, auxiliary and start-up electrical

transformers; generator circuit breaker; switchgear equipment; external cooler units; and 1 no. back up diesel generator and associated diesel storage tank.

- A 220kV GIS substation compound containing a GIS substation building with all control & HV equipment within a single storey 13.3m high (max) building and surrounded by compound road and palisade fence.
- 220kV underground cable to existing EirGrid substation boundary.
- Associated elements including underground cables and ducts, equipment plinths, fencing, lighting, CCTV, internal access roads and hardstanding areas.
- New access and clear span bridge crossing the River Mayne.

3.2. The purpose of the proposed synchronous compensator is to provide inertia and reactive power services to improve the operation of the grid system in the local area.

4.0 Planning History

An Bord Pleanála Ref: 06F.VA0014

4.1. Application approved in February 2013 for the development of a 220kV substation and associated works.

An Bord Pleanála Ref: ABP-303687-19

4.2. Application approved in August 2019 for the provision of a double circuit 110kV underground transmission line between the Belcamp 220kV and 110kV substation and the Darndale 110kV substation covering a distance of approximately 2km.

5.0 Planning Precedent

An Bord Pleanála Ref: ABP-302647-18

5.1. The Board decided in March 2019 that a proposal for a 110kV/ 220kV cable and transformer, control container and electrical housing to facilitate the operation of five battery storage units and four rotating stabilisers at Glencloosagh, Co. Kerry is not strategic infrastructure development.

An Bord Pleanála Ref: ABP-310256-21

5.2. The Board decided on 10th September 2021 that the proposed development of an underground cable and on-site 220kV substation to facilitate the operation of a synchronous compensator compound at Windgates, Co. Kildare is not strategic infrastructure development.

An Bord Pleanála Ref: ABP-311031-21

5.3. Killeena Stability Limited are seeking a determination from the Board as to whether or not the proposed development of an underground cable and on-site GIS building to facilitate the operation of a synchronous compensator compound and associated equipment at Killeena, Co. Cork is or is not strategic infrastructure development.

5.4. No decision has been reached on this case at the time of writing.

6.0 Prospective applicant's case

6.1. The prospective applicant's case is that the proposed development should not be considered as strategic infrastructure for the following reasons:

- Purpose of synchronous compensator is to offer system services to the Irish power system. Compensator itself is not a source of power and therefore cannot be defined as a power plant.
- Deployment of synchronous compensator technology could save tens of thousands of tonnes of CO_2 annually.
- Synchronous compensator draws a small amount of power from the grid to maintain its speed and does not burn fuel or have any other form of prime mover.
- Essentially, the Irish power system comprises lots of individual machines spinning in complete synchronicity with frequency of 50Hz, i.e., 50 cycles per second. Grid relies on inertia to catch and recover a falling frequency event and renewable energy does not contribute inertia like conventional power stations. Synchronous compensator delivers inertia on a standalone basis without the need to bring on a conventional powerplant just for its inertia and reserves.

- When grid frequency fluctuates, the synchronous compensator inherent inertia resists a change in speed and this helps to stabilise the grid by drawing power to overcome friction and bearing drag, acting as a large motor itself, spinning exactly in line with grid frequency – it is the opposite of a generator, it is a demand customer.
- On-site substation and underground cable, though high voltage, does not transport electricity from the generating station to the national grid. Synchronous compensator is a net consumer of electricity and therefore falls outside the classification of SID.
- Not clear from legislation if on-site substation and underground cable falls within Section 182A – Board has previously taken a pragmatic approach and has relied on the long title of the 2006 Act, which provides for the making applications directly to the Board which have strategic economic importance, would fulfil objectives of NPF or would affect more than one planning authority.
- 220kV substation and underground cable would not fall under the categorisation of transmission as it is not connecting a generating station to the grid. Board in any case has determined that tail fed grid connections do not constitute SID.
- Board concluded under ABP-302647-18 that a similar development including rotating stabilisers does not constitute strategic infrastructure development.
- Proposed development will not have a significant effect on the area of more than one planning authority.

7.0 **Legislative provisions**

7.1. Section 182A(1) of the Planning and Development Act, 2000 (as amended) requires that where a person (referred to as the 'undertaker') intends to carryout development comprising or for the purposes of electricity transmission, the undertaker shall prepare an application for approval of the development to the Board.

7.2. Section 182A(9) of the Act states that 'transmission', in relation to electricity, shall be construed in accordance with section 2(1) of the Electricity Regulation Act 1999 but,

for the purposes of this section, the foregoing expression, in relation to electricity, shall also be construed as meaning the transport of electricity by means of –

(a) a high voltage line where the voltage would be 110 kilovolts or more, or

(b) an interconnector, whether ownership of the interconnector will be vested in the undertaker or not.

7.3. Section 2(1) of the Electricity Regulation Act, 1999 defines transmission as follows:

"the transport of electricity by means of a transmission system, that is to say a system which consists, wholly or mainly, of high voltage lines and electric plant and which is used for conveying electricity from a generating station to a substation, from one generating station to another, or to or from any interconnector or to final customers but shall not include any such lines which the Board may, from time to time, with the approval of the Commission, specify as being part of the distribution system but shall include any interconnector owned by the Board."

7.4. Electric plant is defined as follows:

"any plant, apparatus or appliance used for, or for purposes connected with, the generation, transmission, distribution or supply of electricity, other than –

(a) an electric line,

(b) A meter used for ascertaining the quantity of electricity supplied to any premises, or

(c) an electrical appliance under the control of the consumer.

8.0 **Assessment**

8.1.1. The proposed development comprises a synchronous compensator compound and associated ancillary equipment, including a 220kV substation on a 2.9-hectare site to the south of Belcamp 220kV substation, Dublin 17. Other elements of the proposal include 8 no. electrical equipment containers; 4 no. external cooler units; main, auxiliary and start-up electrical transformers and HV equipment; and 1 no. diesel

back-up generator and associated diesel storage tank. The high inertia synchronous compensator (HISC) unit will be enclosed in a 12.1m high steel clad structure.

8.1.2. The prospective applicant, Statkraft Ireland Limited, is seeking a determination from the Board as to whether the proposal is or is not strategic infrastructure development. The prospective applicant considers that the proposed synchronous compensator compound and ancillary works are not strategic infrastructure development. A planning application will be submitted to Fingal County Council and Dublin City Council for the proposed development should the Board agree.

8.1.3. The proposed synchronous compensator is for the purpose of delivering "inertia" to the power system. Inertia is a measure of the system's resistance to a change in speed (frequency). Conventional power plants have more time to recover the system and to replace missing generation and thus the National Grid relies on this inertia to catch and recover a falling frequency event. However, increased levels of renewable energy can give rise to uncertainty and variability for grid operators and additional actions are therefore required to balance the system.

8.1.4. At present, EirGrid has to curtail off some wind and bring on a conventional power plant for its inertia. The synchronous compensator delivers inertia on a standalone basis without the need to bring on a conventional power plant just for its inertia and reserves. When grid frequency fluctuates, the synchronous compensator's inherent inertia resists a change in speed and this helps to stabilise the grid by drawing power to overcome friction and bearing drag, acting as a large motor to keep itself spinning exactly in line with grid frequency.

8.1.5. In deciding whether or not the proposed synchronous compensator compound, 220 kV substation and ancillary works and equipment are or are not strategic infrastructure development, it should be noted that Section 2 of the Planning and Development Act, 2000 (as amended) provides interpretations except where the context requires otherwise. Strategic infrastructure development means *inter alia* (d) any proposed development referred to in Section 182A(1). Under this Section, an undertaker shall apply to the Board for approval of a development comprising or for the purposes of energy transmission. Section 182A(9) states that *'transmission'* shall be construed in accordance with Section 2(1) of the Electricity Regulation Act,

1999 and shall also be construed as meaning *inter alia* the transport of electricity by means of a high voltage line where the voltage would be 110kV or more.

8.1.6. Transmission shall also be construed in accordance with Section 2(1) of the Electricity Regulation Act, 1999 as *"the transport of electricity by means of a transmission system, that is to say a system which consists, wholly or mainly, of high voltage lines and electric plant and which is used for conveying electricity from a generating station to a substation, from one generating station to another, or to or from any interconnector or to final customers but shall not include any such lines which the Board may, from time to time, with the approval of the Commission, specify as being part of the distribution system but shall include any interconnector owned by the Board."* The Board refers to the Electricity Supply Board and the Commission refers to the Commission for Electricity Regulation. EirGrid took over the operation and development of the national grid in 2006.

8.1.7. The Board should note that the HISC is not a source of power; its purpose is not to convert electricity to mechanical power or vice versa but rather to adjust and stabilise conditions on the grid. The HISC draws a small amount of power from the grid to maintain its speed and would therefore be classified as a demand rather than a supply connection. As the HISC does not generate electricity, it would not lead to the conveyance of electricity from a generating station to a substation or from one generating station to another. Therefore, the HISC does not fall within the definition of "transmission" as set out in the Electricity Regulation Act, 1999 or "energy transmission" as referred to in Section 182A of the Planning and Development Act, 2000 (as amended).

8.1.8. The proposed development also comprises a new substation and 220kV underground cable connection to the adjacent Belcamp 220kV substation. There is no threshold under Section 182A(9) of the Planning and Development Act, 2000 (as amended) in respect of a substation. However, this Section explicitly refers to high voltage lines of 110kV or more. EirGrid has provided advice to An Bord Pleanála on previous occasions that "tail fed" developments would not function as part of the national grid despite the voltage of such being 110kV. Conversely, grid connections in proximity to transmission lines that essentially see power in the transmission line being diverted into the substation and back out again, thereby forming a node on the transmission system, have been determined by the Board in the past to constitute

strategic infrastructure development. The proposed substation and grid connection is purely for the use of the synchronous compensator and will not act as a new node on the system. As noted above, the nature of the HISC is such that it draws a small amount of power from the grid that would therefore be classified as a demand rather than a supply connection. Furthermore, the HISC provides inertia as an ancillary service to the grid.

8.1.9. The Board has also given consideration in previous cases as to whether or not a development in question is of strategic national importance. The long title of the 2006 Act provides for the making directly to An Bord Pleanála of applications for permission for "developments of strategic importance to the State". Section 37A(2) refers to 7th Schedule development but generally describes strategic infrastructure development as falling within one or more of the following:

(a) the development would be of strategic economic or social importance to the State or the region in which it would be situate,

(b) the development would contribute substantially to the fulfilment of any of the objectives in the National Planning Framework or in any regional spatial and economic strategy in force in respect of the area or areas in which it would be situate,

(c) the development would have a significant effect on the area of more than one planning authority.

8.1.10. Having regard to the precedent set by the Board within similar cases at Glencloosagh, Co. Kerry (ABP-302647-18) and Windgates, Co. Kildare (ABP-310256-21, I would agree that the current proposal would not be of strategic importance to the State or region, as it will only provide a standalone ancillary service to the grid. The proposal is not a critical link for other strategic developments in the area and is not of strategic economic or social importance to the State or Region.

8.1.11. The National Planning Framework recognises that new energy systems and transmission grids will be necessary to harness the potential of renewable energy. Furthermore, the Regional Spatial and Economic Strategy supports the reinforcement and strengthening of the electricity transmission and distribution networks. However, the proposed development is not of a scale or of such

importance that would contribute substantially to the fulfilment of the objectives of the NPF and RSES. The proposal will be located at the boundary of Fingal County Council and Dublin City Council but will not have a significant effect on either of these local authorities.

8.1.12. Having regard to the nature and scale of the proposed development as described, to the stated purpose of the 2006 Act as set out in the long title, and to the general description and scale of strategic infrastructure development set out in section 37A(2), I conclude that the proposed development consisting of a high inertia synchronous compensator, 220kV GIS substation, 220kV underground cable for the purposes of connecting the synchronous compensator to the adjoining Belcamp 220kV substation, and ancillary services and equipment does not fall within the scope of section 182A of the Planning and Development Act 2000, as amended.

9.0 **Recommendation**

9.1.1. I recommend that Statkraft Ireland Limited be informed that the proposed development comprising the installation of a synchronous compensator compound and associated ancillary equipment including a 220kV substation and 220kV underground cable for the purposes of connecting the proposed synchronous compensator to the adjoining Belcamp 220kV substation, Belcamp, Dublin 17, as set out in the plans and particulars received by An Bord Pleanála on the 12th July 2021, does not fall within the scope of section 182A of the Planning and Development Act 2000, as amended, and that a planning application should be made in the first instance to Fingal County Council/ Dublin City Council.

Donal Donnelly
Senior Planning Inspector

12th October 2021