



An  
Bord  
Pleanála

## Inspector's Report ABP-311031-21

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### Development

Proposed development of an underground cable and on-site GIS building to facilitate the operation of a synchronous compensator compound and associated ancillary equipment.

### Location

Townland of Killeena, Knockraha, Co. Cork.

### Planning Authority

Cork County Council

### Type of Application

Pre-application consultation

### Prospective Applicant

Killeena Stability Limited

### Inspector

Donal Donnelly

## **1.0 Introduction**

- 1.1. The Board received a request on 4<sup>th</sup> August 2021 from prospective applicant, Killeena Stability Limited, 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 an underground cable and GIS building to facilitate the operation of a synchronous compensator compound at Killeena, Knockraha, Co. Cork.
- 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 in the townland of Killeena in south-eastern Co. Cork approximately 1.5km east of the village of Knockraha and 12km north-east of Cork City. The site comprises agricultural grasslands and the surrounding area is predominately pasture.
- 2.2. The site is on the southern side of a local road and on the northern side is the Knockraha 220kV substation. The site includes a narrow strip that continues along the roadside boundary opposite the 220kV substation to the main part of the site to the east, where the substation will be located. The proposed synchronous compensator compound is situated outside the site boundary immediately to the south of the proposed substation location.

## **3.0 Proposed development**

- 3.1. The proposed development comprises the provision of a 220kV underground cable and onsite GIS building to facilitate the operation of a synchronous compensator compound and associated ancillary equipment.

- 3.2. The entire site comprises an area of 0.82 hectare and the SID determination relates an area of 0.52 hectare. The proposed synchronous compensator compound will be located to the south of the proposed single bay GIS substation compound. The purpose of the compensator is to provide inertia and reactive power that stabilises the grid when it is frequently fluctuating owing to higher penetrations of renewable energy.
- 3.3. The SID determination relates to the on-site substation and grid connection elements of the proposal only. The single-bay GIS station will be housed in its own compound and the underground cable will connect to the Knockraha 220kV substation to the north-west.
- 3.4. The prospective applicant intends to apply to Cork County Council for permission for the entire development (synchronous compensator, on-site substation and 220kV underground cable), should the Board determine that the proposed development is not strategic infrastructure development.

#### **4.0 Planning History**

Cork County Council Reg. Ref: 13/06402 (PL.244030)

- 4.1. The Board granted permission to EirGrid PLC for extension of existing 220KV substation with associated equipment and site development works.

#### **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.

- 5.3. Statkraft Ireland Limited is seeking a determination from the Board as to whether or not the proposed installation of a synchronous compensator compound is or is not strategic infrastructure development. This proposal includes a 220kV substation and connection to the existing Belcamp 220kV substation, Belcamp, Dublin 17.
- 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<sub>2</sub> 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 power plant 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 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 fall within any of the three classes of development set out in the Seventh Schedule.
- Proposed development is located solely within the administrative area of Cork County Council and 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 carry out 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 the development of a single bay GIS substation and a 220kV underground cable. The purpose of the proposed development is to connect a proposed synchronous compensator to the existing Knockraha 220kV substation to the west of the site.

8.1.2. The prospective applicant, Killeena Stability Limited, intends to apply directly to Cork County Council for permission for the synchronous compensator compound and ancillary equipment. A determination is sought from the Board as to whether the proposed single bay substation and 220kV underground cable over a distance of approximately 200m from the proposed synchronous compensator to the Knockraha 220kV substation is or is not strategic infrastructure development. The prospective

applicant considers that it is not strategic infrastructure development. An application for the entire development (synchronous compensator, substation and cable), will be submitted to the Council if the Board decides that the proposed substation and cable elements of the proposal are not strategic infrastructure development.

- 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 substation and cable 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. 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. The proposed development comprises a new substation and 220kV underground cable to the Knockraha 220kV substation. 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 or more. 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 development is purely for the use of the synchronous compensator and will not act as a new node on the system. Furthermore, the nature of the synchronous compensator 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.

8.1.8. 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 7<sup>th</sup> 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.

- 8.1.9. 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 serve only the proposed synchronous compensator. 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.
- 8.1.10. 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 also be located entirely within Co. Cork and will not therefore have a significant effect on more than on planning authority.
- 8.1.11. 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 an on-site single bay GIS substation and 220kV underground cable for the purposes of connecting an adjoining proposed synchronous compensator to the nearby Knockraha 220kV substation, Co. Cork 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 Killeena Stability Limited be informed that the proposed development consisting of an on-site single bay GIS substation and a 220kV underground cable for the purposes of connecting an adjoining proposed synchronous compensator to the Knockraha 220kV substation in the townland of Killeena, Co. Cork, as set out in the plans and particulars received by An Bord Pleanála on the 4<sup>th</sup> August 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 Cork County Council.

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Donal Donnelly  
Senior Planning Inspector

12<sup>th</sup> October 2021