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19th April 2022

Re: 400/110 kV substation at Coolnabacky
Laois Kilkenny Electricity Reinforcement Project – ABP Reg. Ref. VA0015

Dear Simon,

1. Introduction

I refer to your letter dated 16th March 2022 in which you request information in relation to various environmental, ecological, hydrological and hydrogeological matters that are associated with the 11 planning conditions, as set out by An Bord Pleanála (ABP), together with commitments contained with the Environmental Impact Statement (EIS) and other documents supporting the planning approval (Reference ABP VA0015) for the 400/110 kV substation at Coolnabacky.

We discussed some of these issues in a general way at our meeting in Laois County Council (LCC) on 11th April 2022, but this letter provides a more formal response to your letter. Where we are in a position to provide specific information in response to the questions in the letter, this is provided. However, as discussed at the meeting we are not in a position at this time to provide a specific detailed response to all issues raised, because the contract for the main substation construction and transformer supply are currently out to tender and until a contractor and

transformer supplier are appointed, specific technical and detailed designs are not available. We will of course provide more detailed responses as they become available and will continue to engage with LCC.

For clarity, I would like to outline the different roles of ESB and EirGrid in delivering the project. The statutory roles and responsibilities of EirGrid and ESB have been established under a legally binding Infrastructure Agreement (IA) between the two companies. Under the IA, EirGrid as national transmission system operator (TSO) has the statutory responsibility for obtaining the necessary planning consent for any transmission infrastructure development, however, it is ESB who are responsible for constructing the development. ESB is the national transmission asset owner (TAO), while EirGrid operates the transmission system. As such, the proposed development, while the subject of a planning approval granted to EirGrid, will be undertaken by ESB and contractors engaged on ESB's behalf. While the specific works are normally carried out by ESB and their contractors, EirGrid retains a Client Engineering function during construction.

I note the contact points in LCC environmental section who will be managing these aspects and it is intended to meet the contacts in due course to discuss matters in more detail.

2. Ecological Clerk of Works

At this time ESB have not yet appointed a specific ecological clerk of works for the construction of the new substation. ESB is currently tendering for the construction of the substation and the engagement of an ecological clerk of works is part of the project tender scope. When the tender has been awarded, ESB will be able to confirm the name of the ecological clerk of works.

However, the role of the ecological clerk of works for works carried out to date on the site has been carried out by ESBs team of professional ecologists, and all works on the site have been ecologically monitored. Nothing of ecological significance has been noted in the various site visits.

Additional to the ESB ecology team, ESB has employed an external hydrogeologist, IE Consulting. They were appointed by ESB to undertake an independent assessment of risk to

the Tufa Springs and to assist ESB in implementing any additional mitigations highlighted by IE Consulting. As part of that assessment, Groundwater Levels and Quality data were collected and analysed. As part of their assessment and monitoring work, their team also included a professional ecologist, Dr Joanne Denyer of Denyer Ecology. The role of the IE ecologist is to monitor the adjacent tufa springs and to advise on further management of the habitat (the ecologist is the national expert on these habitats) as the project progresses.

The assessment resulted in the following conclusions and recommendations:

Conclusions

- *The site is in a low lying flat area with a natural stream on the north border and small drains on the western, eastern and southern borders. Some of these bordering water bodies have tufa deposits.*
- *The site is located over a regionally important bedrock aquifer (Karstified - diffuse).*
- *A geophysical survey on the site confirmed the ground underlying the substation was relatively homogenous, mostly underlain by sandy and gravelly clay and silt with slightly gravelly clay.*
- *No bedrock was indicated on the geophysical survey to a depth of 6m, and boreholes have confirmed no bedrock to depths of 9m below ground level.*
- *Three boreholes were drilled in sand and gravel rich lenses, meeting stiff boulder clay at 3m depth.*
- *There is a shallow perched aquifer, which is hydraulically isolated from the underlying bedrock aquifer, and this forms the source waters for Tufa formation on the site.*
- *Water level monitoring over the course of 6 months showed a groundwater gradient from southwest to northeast. It also showed water levels are closely connected to rainfall and rise after extensive periods of rainfall, when any positive soil moisture deficit is overcome. If the groundwater flow direction is consistent off-site, then the tufa deposits on the site are probably recharged from lands to the southwest, beyond the sub-station site.*
- *It is suspected that the drains around all four sides of the site, will have intercepted a significant portion of any incoming shallow groundwater flow, so the opportunity for the groundwater on the site to become highly mineralised on the site is not available.*

- *Water quality monitoring was undertaken at four boreholes. Overall water quality was good.*
- *Although there are some unexplained anomalies, the general overview is of groundwater on the site mineralised with calcium, and with very low nutrient concentrations, which will be supportive of the tufa deposits.*
- *The Ecologist report mapped streams with tufa deposits on the western and northern border of the site.*
- *Two survey plots along the streams found these streams to be groundwater fed and tufa producing, but mostly lacking in species needed to be a clear example of an Annex I priority petrifying spring habitat.*
- *It is more likely that the closest tufa spring CB01 is fed from ground to the west of the site, whereas CB02 does probably receive some groundwater feed from the site via the nearby spring.*
- *CB02 flows inside the site boundary for most of its course, exiting the site through a gap in the boundary ditch, to join the larger stream that skirts the northern boundary of the site.*

Recommendations

- *The tufa streams surrounding the site do not qualify as a clear example of an Annex I priority petrifying spring habitat apart from CB02. However, these streams should still be protected to prevent further degradation. The following are recommendations from the conclusions of this report.*
- *Suitable measures should be employed to reduce surface water run-off from the site to prevent dilution of the streams upstream of the identified Tufa sites.*
- *There should be no outfalls of surface water from the site into the drains west and north (as far as the point where the tufa stream joins the main stream 40m from the corner of the field). The outfalls should be to the main stream beyond this point.*
- *Groundwater monitoring should continue at the site to ensure there is no excessive nutrient loading, this should also occur at the proposed supply well twice a year.*
- *Surface water samples should be taken from each of the side streams and from the main stream and analysed for the same parameters as groundwater samples.*

- *A further assessment should be undertaken by the ecologist to advise on further management of the habitat.*

The full report is attached as **Appendix 1 Assessment of Tufa Springs**.

3. Surface and Ground Water Monitoring

I note that you have extracted proposed water monitoring details from the EIS as follows:

Page 639 of the EIS states 'In order to ensure that ongoing works are being carried out in accordance with the Construction and Environmental Management Plan, water monitoring will be undertaken during the Construction Phase. Sampling points will be located at the following designated locations:

- *Upstream of the construction site discharge points (surface water)*
- *Outlet from the proposed settlement ponds (surface water)*
- *Downstream of the construction site discharge points (surface water)*
- *Up gradient of the construction site (BHl - ground water)*
- *Down gradient of the construction site (BH4 - ground water)'*

Also I note that LCC are requesting a:

Ground and Surface Water Monitoring Programme to include:

- *A site map clearly identifying all proposed Monitoring Locations at the site,*
- *A list of proposed parameters to be tested for both groundwater and surface water monitoring on site*

Sampling/Testing frequency for the Water Monitoring Programme is:

- *Groundwater - Biannual Testing (2 tests per annum)*
- *Surface Water - Quarterly Testing (4 tests per annum)*

Details of any ground and/or surface water monitoring completed to date should also be submitted to Laois County Council.

ESB have already commissioned IE Consulting to prepare a water monitoring programme in accordance with the requirements specified above and have carried out early stage sampling and testing.

Appendix 2 Water Monitoring Programme provides the results of the water monitoring to date and the ongoing proposed programme. We are happy to meet the LCC Environmental Team to discuss the programme and to confirm that it meets LCC requirements.

4. Transformer Structures

You have requested confirmation of the following:

- *Details (including depths, thicknesses etc) of all reinforced concrete curtain walls, reinforced concrete sump walls, reinforced concrete sump floors,*
- *Specific details of bunding in keeping with volume commitments set out in the EIS and acknowledging that the supplier of the transformers is to hand*
- *Roofing and enclosure details for Transformers.*

A. Details of Reinforced Concrete and

B. Bunding Details

As discussed at the meeting and as outlined earlier in this letter we are not in a position at this time to provide a specific response to all issues raised, because the contract for the main substation construction and transformer supply are currently out to tender and until a contractor and transformer supplier are appointed, specific technical and detailed designs are not available.

The planning drawings submitted with the application, specifically drawings PE610-D002-003-012-001 and PE610-D002-003-004-001 show details in relation to the transformer structures including concrete walls and bunding. These drawings were prepared in 2012 and were based on the best available information at that time. Following awarding of the transformer supply contract, the electrical and civil designers will prepare detailed designs for the transformer bays including the exact size of the concrete bunds. It is expected that the detailed design will not differ materially from that approved by ABP.

It should be noted that the plan for constructing the substation is split into 2 phases.

- Phase 1: 110kV building and associated works, estimated start Q3 2022.
- Phase 2: 400kV and transformer enclosures, estimated Q2 2023.

When the detailed design information becomes available (estimated Q3 2022) this will be provided to LCC.

C. Roofing and enclosure details for transformers

ESB can confirm that it is not intended to roof the transformers. They are air cooled and are designed to be housed within an unroofed enclosure. The details below (extracted from the EIS pages 50) show the details for the transformers. There may appear to be differences between drawings PE610-D002-003-012-001 and PE610-D002-003-004-001 but for clarity, drawing PE610-D002-003-004-001 Roof Plans, shows the transformers in an unroofed enclosure.

> ***Environmental Impact Statement for Laois-Kilkenny Reinforcement Project***
> ***Page 50 Introduction 2.6.1.1.5 Transformer Enclosure***
> *The installation also includes enclosures for 2 no. 400/110 kV, 500 MVA transformers and 2 no. shunt reactors. These will be positioned in bunded enclosures between the two steel framed buildings and adjacent to the 400 kV GIS building. The enclosures will be plan area 25m x 10m each for transformers and plan area 14m x 10m each for shunt reactors. Both will be surrounded on three sides by fire walls approximately 10m high of reinforced concrete construction. There is no additional level of complexity in the construction of these bunds and walls due to the electrical equipment that they will house; the construction methodology is approached in the same manner as the building foundations in Section 2.6.1.1.4. Plans, sections and elevations of this enclosure can be referenced on drawing PE610-D002- 003-012.*

Figure 2.18 Typical walled enclosures for transformers and shunt reactors

You have also requested confirmation as to the following:

- *In the Construction Phase, bund integrity tests will be undertaken by a suitably qualified Engineer to confirm the integrity of the bund as constructed,*
- *In the Operational Phase documented weekly inspections of the Bunds and the Class 1 Retention Interceptor will be undertaken, with additional inspections provided following heavy rainfall.*
- *In the Operational Phase a maintenance programme will be submitted to the Council for the Class I Retention Interceptor.*

A. Construction Phase Bund Integrity Tests

ESB can confirm that bund integrity tests will be undertaken and certified by a suitably qualified Engineer to confirm the integrity of as constructed bunds. This is standard practice for ESB substation developments.

B. Operational Phase Weekly Inspections of Bunds and Interceptor

C. Operational Phase Maintenance Programme of Interceptor

When construction and commissioning of the substation is completed it will be handed over to ESB Networks (ESBN) Operational and Maintenance (O&M) department, the substation will then operate within ESBN's standard operating procedures. Specific O&M details in relation to Coolnabacky substation will be agreed with ESBN O&M as the project construction progresses. The following points are general ESBN O&M standards

- ESBN has a certified and audited Environmental Management System (EMS).
- ESBN, as asset owner, has maintenance standards for all substations and in the case of 400 kV stations these also reflect the needs of EirGrid as the asset operator.
- These are risk based and reflect experience and international good practice.
- Bunds and interceptors are designed with additional capacity to cater for rainfall as well as faults.
- Bunds are tested before commissioning.
- All transformers are remotely monitored, on a 24/7 and alarmed for abnormal conditions including changes in oil levels.
- In the event of an emergency, operators are dispatched on a 24/7 basis to deal with this issue.
- Regular substation inspections take place based on the substation profile (e.g. location, age, equipment type, etc.) using a risk based approach.
- The frequency of bund and retention interceptors does not normally take place on a weekly basis but is carried out having regard to the remote alarm regime, the regular station inspections and the age of the assets. It is ESBs experience that conducting inspections of the bund and retention interceptor every week or following heavy rainfall would not provide any extra benefit.

5. Conclusion

At the meeting you requested details of the various audits carried out on the site to date. **Appendix 3 Schedule of Audits** provides details of the various environmental, ecological and safety audits carried out at the site to date.

I trust this addresses the issues raised in your letter. As previously stated, ESB are happy to meet LCC on an ongoing basis as necessary. If you have any queries in relation to this submission please contact me on 086 8336990 or brendan.allen@esb.ie.

Yours sincerely,

Brendan Allen

Brendan Allen
Planning Team Leader FIPI