

September 24<sup>th</sup>, 2010

Dear Una,

I am writing in response to your letter dated September 15<sup>th</sup>, 2010, your reference "Reg No: P0606-03".

In the letter you have requested the following information:

"Please clarify the nature of emissions point references numbers SS01, SS03 and SS04, referred to Schedule 4(i) of existing licence P0606-02."

The current licence in Great Island (the licence associated with the review application) is quite an old licence by licensing standards. Throughout the duration of the licence the surface water, process water and other emission points seem to have been relabelled in order to try and streamline the licence and the enforcement process associated with the licence. As you are aware Endesa Ireland have inherited the licence from the ESB as part of the national Asset Strategy Agreement when the ESB disposed of power generation sites to encourage competition into the marketplace (Endesa acquired the sites on January 8<sup>th</sup> last year). SS01, SS03 and SS04 are water monitoring points into the estuary, however these emission points monitor for substances that are not used in the station, for example "Arsenic" and "Aluminium". They also, however, monitor for mineral oil and Petroleum/Polyaromatic Hydrocarbons, this maybe as a result of Heavy Fuel Oil being stored on site. Please bear in mind however that the Heavy Fuel Oil (HFO) tanks are located in a bunded tank farm and this bund is drained via an oil interceptor into the existing Surface Water monitoring point "SW1". This arrangement will be maintained into the future as per Section E in the IPPCL review application figure E.2.1, "Site Drainage Plan". When the CCGT is commissioned we will no longer store HFO in the tank farm but will be storing distillate oil as per Commission for Energy Regulation security of supply legislation. It is important to note however that we currently have five HFO tanks, each with 17,000m<sup>3</sup> capacity (total tank farm capacity 85,000m<sup>3</sup>) whereas in the future we will only require partial use of one tank. Legislation requires 10,000m<sup>3</sup> of distillate oil to be stored on site for CCGT plants. The distillate is to be used for emergency situations in the event there is a disruption to the gas supply as described in the EIS and IPPCL review application. Based on the nature of this requirement it is envisaged that filling/refilling of the tank will be relatively infrequent. Also as part of the planning application for the CCGT, the bunding requirements of the tank farm have been reviewed against current SEVESO lower tier standards. As stated above this bund is serviced by SW 1 that will be retained as part of the revised IPPCL.

As part of the current licence and the revision application submitted we have a substantial amount of monitoring points included in the licence including process water, surface water and ground water monitoring (please see attached table appended to this letter). In addition we have now labelled all these monitoring points appropriately and therefore this will help both Endesa and the EPA with the enforcement and monitoring process into the future. We believe the monitoring points identified in the attached table (summary of existing plant emission points) are representative of the site in its current status and the planned future arrangements when the CCGT is commissioned. These monitoring locations will therefore provide a meaningful representation of the characteristics of the site for monitoring and enforcement purposes. Therefore Endesa Ireland proposes that the existing monitoring points in the attached table will be maintained according to the "comment" section on the table.

In addition please find attached information in relation to Carbon Capture and Storage, the Auxiliary Boiler, Appropriate Assessment and summary list of monitoring points.

If you require any additional information please do not hesitate to contact me.

Best Regards



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## Auxiliary Boiler

Certain suppliers require the use of an auxiliary boiler, of less than 5 MW, to provide heat to the plant during start up periods. If an auxiliary boiler is required, frequency of use will be limited to one or two events per annum and will last for a very short duration (typically 3-4 hours max at any time). The auxiliary boiler will never operate while the Combined Cycle Gas Turbine (CCGT) plant is running and is only used during plant start-up.

Final design, depending on the technology selected, will confirm the need for this boiler. In cases where the boiler is required, emissions from this auxiliary boiler are considered negligible.

## Carbon Capture and Storage (CCS)

Endesa Ireland has extensively researched CCS technology right across developed countries in order to obtain information on CCS in relation to Combined Cycle Gas Turbine technology. This research included discussions with the main plant manufacturers (Siemens, Alstom, GE, etc.). At this stage research on CCS for CCGT technology is in its infancy and it is not clearly decided how the technology will be applied to large CCGT generating stations. The main focus is on Coal plants as these are deemed to be a major CO<sub>2</sub> producer whereas gas fired CCGT is considered as "clean technology". Trial projects using Chilled Ammonia are being developed in Norway and Sweden on gas-fired Combined Heat and Power Plants (40MWt and 5MWt respectively) and are due to be completed sometime in 2011 (note- these are not large CCGT plants but small gas fired CHP plants). This is very early-stage technology based on small gas-fired plants.

As the technology is therefore not developed for CCGT plants, a prudent approach is to ensure that, if required, there is adequate space on site to allow for retro-fitting CCS technology once it has been sufficiently developed. This is basically termed as leaving the site ready for "CCS retrofitting". In terms of the amount of space to be allocated for the future retro-fitting of CCS, the main CCGT manufacturers recommend approximately 14,000m<sup>2</sup>, typical for a modern 440MW single shaft CCGT power plant. (an ESBI CCGT plant currently being developed in North Wales has allocated a similar amount of space per MW). As a result and as per the letter attached to the Great Island IPPCL revision application, Endesa Ireland have identified over 14,000m<sup>2</sup> (approx 19,000m<sup>2</sup> is available) for this purpose on the Great Island site. Endesa also have the facility of running a pipeline to the already existing jetty if technology becomes available to allow transportation of carbon for storage off-site.

In summary, the current recommendation is that space is identified for CCS technology in proximity to the new development. As per the cover letter accompanying the IPPC license revision application, based on research and conversations with the main manufacturers, Endesa Ireland have committed more than the recommended space to accommodate CCS in the future, therefore this will facilitate retro-fitting once the technology is developed.

In all cases, Endesa Ireland can confirm we will be compliant with the relevant European legislation (DIRECTIVE 2009/31/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 23 April 2009 on the

geological storage of carbon dioxide) or the corresponding Irish legal requirements if they are implemented.

### **Appropriate Assessment**

As per appendix 12.2 of EIS, the Appropriate Assessment screening report considers the impacts of the Great Island CCGT power plant development and in combination with other developments in the area, including developments at the Belview Port 2 km to the north of Great Island. The screening process indicated that the proposed development does have the potential to affect the qualifying features of interest of the two Natura 2000 sites, the River Barrow and River Nore SAC and the Lower River Suir SAC. However, as the impact assessment demonstrates the proposed activities will not have an adverse effect on the integrity of the sites or the qualifying features of the conservation objectives of the Natura 2000 sites (Annex 12, Section 12.2).

In terms of the appropriate assessment in combination with other activities in the area, based on the IPCC Licence conditions the discharges from the SmartPly Ltd facility are of sufficient levels to be diluted quickly within the estuary before interacting with discharges from the proposed new power plant. As a result they will not act in combination with discharges from the Endesa development. Cement dust from Belview port plant is unlikely to enter the marine environment as the process is contained and dust is minimised. The cement is also non-toxic. Discharges from the biodiesel plant are highly biodegradable and will be quickly broken down in the estuarine environment due to mixing process and biological activity. As a result there will be no cumulative impact of these activities.

The training wall proposed as part of the phase 10 development at Belview port will not have a cumulative impact. Modelling suggests that initial current increases will result if no capital dredging is carried out before the training wall is constructed, due to increases in water volume. This would lead to scouring and deposition of sediment further downstream until equilibrium is reached (ie the depth increases until the current speed is reduced back to the original speed). However, with the proposed capital dredging, the speed will be maintained during and after construction and the equilibrium maintained. The local current will not increase. No cumulative impacts with the Great Island power plant will be experienced.

As a result, the Great Island power plant and developments at the Belview Port will not act in combination and will not have an adverse effect on the Natura 2000 sites.

There are no other known plans or projects in the vicinity of Great Island Power Plant which may act in combination with the proposed development to impact on intertidal and benthic communities. Waterford Container Terminal lies approximately 2 kilometres upstream of the Power Plant on the River Suir at Belview Port. However potential impacts from the proposed development are not expected to act in-combination with the Belview Port development.

There are no significant cumulative effects expected from the operation of the new plant with the demolition of the existing plant.

## Existing HFO plant Emission Points

The following is a summary of the current emission points and the planned action for each with regard to the CCGT development, once commissioned:

| Category   | Emission Point                                      | Comment  |
|--|---|--|
| <u>1. Emissions to Water</u><br><br>Great Island Generating Station currently has twelve licensed water emission points discharging to the Barrow Estuary: | SW1 Surface Water - Tank farm.                      | Once CCGT is commissioned:<br>Retained as surface water run-off from the AGI area, as stated in the IPPCL application                                |
|  | (SW)PE2 Process Emission - Condenser cooling water. | Once CCGT is commissioned:<br>Retained as cooling water outfall (current cooling water infrastructure to remain), as stated in the IPPCL application |
|  | SW3 Surface Water - Sewage Treatment.               | Once CCGT is commissioned:<br>Retained as part of new foul water treatment system as stated in the IPPCL application                                 |
|  | SW4 Surface Water - Station drainage South.         | Once CCGT is commissioned:<br>Retained as surface water run-off from the CCGT area, as stated in the IPPCL application                               |
|  | PE5 Process Emission - Boiler blowdown B Station.   | Once CCGT is commissioned: this will no longer be required   |
|  | PE6 Process Emission - Boiler blowdown A Station.   | Once CCGT is commissioned: this will no longer be required   |
|  | PE7 Process Emission - Engine Rooms Drains.         | Once CCGT is commissioned: this will no longer be required   |

|   |  |   |
|---|--|---|
|   | PE8 Process Emission - Screen wash water.                        | Once CCGT is commissioned: this will no longer be required  |
|   | SW10 Surface Water – Station Drainage West.                      | Once CCGT is commissioned: this will no longer be required  |
|   | SW11 Surface Water - Reservoir drainage.                         | Once CCGT is commissioned: this will no longer be required  |
|   | SW12 Surface Water – Station drainage South.                     | Once CCGT is commissioned: Retained as surface water run-off from the CCGT area, as stated in the IPPCL application           |
|   | (SW)PE13 Process Emission – Water Treatment Neutralisation Tank. | Once CCGT is commissioned: Retained as process waste water (current installation to stay), as stated in the IPPCL application |
|   | SS01   | This will no longer be required   |
|   | SS02   | This will no longer be required   |
|   | SS04   | This will no longer be required   |
|   |  |   |
|   |  |   |
| <u>2. Emissions to Atmosphere</u><br><br>Great Island Generating Station currently has three licensed emission points to the atmosphere | 3 stacks: A1-1, A1-2 and A1-3                                    | None of them will be operating once the CCGT is commissioned.   |
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| <p><u>3. Ground Water Monitoring</u></p> <p>Great Island Currently has eleven Ground Water Monitoring points</p> | BH2   | Once CCGT is commissioned: retained as groundwater monitoring |
|  | BH3   | Once CCGT is commissioned: retained as groundwater monitoring |
|  | BH4   | Once CCGT is commissioned: retained as groundwater monitoring |
|  | BH5   | Once CCGT is commissioned: retained as groundwater monitoring |
|  | BH7   | Once CCGT is commissioned: retained as groundwater monitoring |
|  | BH9   | Once CCGT is commissioned: retained as groundwater monitoring |
|  | BH10  | Once CCGT is commissioned: retained as groundwater monitoring |
|  | MW101 | Once CCGT is commissioned: retained as groundwater monitoring |
|  | MW107 | Once CCGT is commissioned: retained as groundwater monitoring |

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|  | MW200 | Once CCGT is commissioned:<br>retained as groundwater<br>monitoring |
|  | MW203 | Once CCGT is commissioned:<br>retained as groundwater<br>monitoring |

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