Submission	
Submitter:	Miss Elish O'Reilly
Organisation Name:	HSE
Submission Title:	HSE Submission Report
Submission Reference No.:	S005875
Submission Received:	19 November 2019
Application	
Applicant:	SSE Generation Ireland Limited
Reg. No.:	P1118-01
See below for Submission details. Attachments are displayed on the following page(s).	

Environmental Health,
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Navan,
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19/11/2019

Environmental Licensing Programme,
Office of Environmental Sustainability,
Environmental Protection Agency,
PO Box 3000,
Johnstown Castle Estate,
Co. Wexford

ID Number: 1026

Re: P1118-01
Applicant: SSE Generation Ireland Limited
Proposed Development: The applicant is applying to the Environmental Protection Agency for an Industrial Emissions (IE) Licence for a proposed development in Carranstown and Caulstown, Platin, Duleek, Co. Meath. The class of activity at the site according to the First Schedule of the Environmental Protection Agency Act 1992, as amended is: Class 2.1. *Combustion of fuels in installations with a total rated thermal input of 50 MW or more.* The applicant was granted planning permission for the proposed development of a 208 Megawatt Open Cycle Gas Turbine (OCGT) Generating Plant by Meath County Council in July 2019 subject to a number of conditions. (Planning File Ref no. LB/190031).

Dear Sir/Madam,

Please find enclosed the HSE consultation report in relation to the above proposal.
If you have any queries regarding any of these reports, the initial contact is Elish O'Reilly, Principal Environmental Health Officer who will refer your query to the appropriate person.
The following HSE departments were made aware of the consultation request for the proposed development on 16-10-2019

- Emergency Planning – Brendan Lawlor
- Estates – Helen Maher
- Assistant National Director for Health Protection – Kevin Kelleher / Laura Murphy
- CHO – Pat Bennett

Environmental Health Report
The EH service response to the proposal is in the attached consultation report.
• The assessment is based (solely) on an assessment of documentation submitted to this office on 16/10/2019 by SSE Generation Ireland Ltd.
• A site visit was conducted on 19th February 2019.
• All commitments to future actions including mitigation and further testing have been taken as read and all data results have been accepted as accurate.
• No additional investigations / measurements were undertaken.
• This report refers only to those sections of the documents which are relevant to the HSE.

- We have made observations and submissions under the following specific areas:
  Emissions to Atmosphere; Emissions to Water; Emissions to Sewer; Emissions to Ground;
  Waste Management; Noise and Environmental Management;

All correspondence or any queries with regard to this report including acknowledgement of this report should be forwarded to Elish O'Reilly.

Yours Sincerely,

Elish O' Reilly

Elish O'Reilly
Principal Environmental Health Officer

Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive

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Ms Elish O'Reilly
Principal Environmental Health Officer
County Clinic
Navan
Co. Meath

19th November 2019

HSE EIS SUBMISSION REPORT
Environmental Health Service Consultation Report
(as a Statutory Consultee (Planning and Development Acts 2000,
& Regs made thereunder).

Report to: **Environmental Protection Agency**

Type of consultation: EIS □ Scoping □ Screening (constraints) □

Other (please specify) **Industrial Emissions Licence Application**

Planning Authority: **Meath County Council**

Reference Number: **P1118-01**

Applicant: **SSE Generation Ireland Ltd**

Proposed Development:

The applicant is applying to the Environmental Protection Agency for an Industrial Emissions (IE) Licence for a proposed development in Carranstown and Caulstown, Platin, Duleek, Co. Meath. The class of activity at the site according to the First Schedule of the Environmental Protection Agency Act 1992, as amended is: Class 2.1. *Combustion of fuels in installations with a total rated thermal input of 50 MW or more.* The applicant was granted planning permission for the proposed development of a 208 Megawatt Open Cycle Gas Turbine (OCGT) Generating Plant by Meath County Council in July 2019 subject to a number of conditions. (Planning File Ref no. LB/190031).

The proposed development will consist of the construction of a 208MW OCGT (Open Cycle Gas Turbine) Generating Plant consisting of the following main elements:
a) 4 No. containerised Peaker Plant units (each 248m2 and c. 8m wide x 31m long x 3.5m high),

each housing a fully enclosed and roofed turbo generator comprising of 2 No. turbines with a common generator, all on a concrete plinth of 615m2;

b) Each unit has two exhaust stacks (15m in height) one for each turbine

c) Water treatment plant comprising:
- 275m2 Water Treatment (Demineralisation) Building (6m high x 11m wide x 25m long)
- a 120m2 raw water treatment tank of 1000m3 (c. 10m high)
- a 315m2 deionized (treated water) water storage tank (max. volume of 4900m3) c.16m high
- hydrochloric acid tank (5m3) c.3m high

- sodium hydroxide tank (2.5m3) c.2m high
- waste water storage tank (40m3) (c. 2.5m high)
- 25m2 Firewater Module measuring 5m wide x 5m length x 5m high
- Foul water pump station (slab area of 121m2)

d) 2 No. Fuel storage tanks to hold a maximum volume of 4,900m3 (each c. 16m high), and associated fuel pumping and filtering equipment and pipework, all within a 2,350m2 concrete bund
e) 3 No. Waste Storage Containers, each 80m2 (c. 3m wide x 26m length x 4m high)
f) Diesel Generator with floor area of 32m2 (c. 4m wide x 8m length x 4m high)
g) 2 No. transformers each 160m2, and each measuring c. 8m wide x 10m length x 9m high
h) a 830m2 Office and ancillary services building (c. 20 wide x 47 length x 6m high)
i) a 570m2 Switchgear (MV) building (c. 13 wide x 54 length x 5m high)
j) all other miscellaneous and ancillary site works, including 12 No. car parking spaces and 3 No. unloading bays, widened and upgraded entrance from the R152, two lowered platform areas, and internal circulation road and hard and soft landscaping, a temporary construction compound, and palisade fencing.
k) New road markings, including deceleration lane approaching the site on the R152
The proposed development will include connection to public water and wastewater provision supplied by Irish Water.

The proposed overall development will also consist of the construction of a 110KV transmission substation consisting of the following main elements: (a) the construction of a 4 bay AIS Transmission 110 kV substation in a compound measuring 150m x 80m – 12,000m2 under the existing Corduff – Platin 110 kV overhead line and the looping into the proposed substation of said overhead line;

(b) A Substation Control Building with floor area of 240m2, measuring 20m x 14m, and 6m high

(c) The removal of a 500m length of the 110 kV overhead line and the diversion of this line by means of underground cables along the western and northern boundaries of the site;

(d) The installation of 2 no. line to cable interface masts (LCIM) approximately 16m in height in the north-east and south-west corners of the site to convert the overhead line into an underground cable;

(e) All other ancillary works.

This part of the development falls within the remit of Section 182A of the Planning and Development Act, 2000, and requires a direct application to An Bord Pleanála as a Strategic Infrastructure Development.

General Introduction

This report only comments on Environmental Health Impacts of the proposed development as outlined in the documents submitted by the applicant and the adequacy of the application from an Environmental Health viewpoint. I have made observations and submissions on the following specific areas:

i. Description of the Project

The proposed OCGT (Open Cycle Combustion Turbine) plant will generate up to 208MW of electricity using 4 containerised peaker plant units. The proposed plant will be operated as a "peaking plant", used to cater for peaks in national electricity demand. It will operate when demand is highest or when there is a shortage of supply on the grid. The plant will be designed for flexible operation and rapid response to load changes on the grid. The applicant states that plants of this type are commonly in use throughout the world to support peak demand.

The Government has set a target of 40% of electricity consumption to be met by renewable energy by 2020, the majority of which is expected to be provided by Wind Powered Generation (WPG) with some solar. Wind output and conditions can fluctuate at any particular time. This plant will be brought into operation during periods of low wind energy and peak demand.

Electricity demand usually peaks during the winter months in the evening time after 6pm. It is proposed that this plant will be on standby for use at any time throughout the year. It may be required to cover electricity supply shortages or maintenance outages of other plant.

The environmental report advised that each combustion turbine will operate for about 1000 hours per year, each turbine will run up to a maximum of 1,500 hours per year. The applicant states that there may be higher operating times during winter months.

It is proposed that the OCGT Generating Plant will generally be run under automatic control from a remote location. Up to 5 people will be on site carrying out routine management, security and maintenance from Monday to Friday.

(Summary of Process: Electricity will be generated by compressing air which will be fed into the combustion chamber. The compressed air will be mixed with a controlled amount of fuel and water mixture and heated to a high temperature by the direct combustion of the fuel. The heat produced causes expansion of gases. These exhaust gases are expanded back to atmospheric pressure across the gas turbine producing motive power. This power will be used to drive the electrical generator producing electricity.)

ii. Description of the Physical Environment

The site is a green field and is being used for agricultural purposes at present. Irish Cement operate a quarry and cement plant approximately 500m north-west of the site. Indaver Waste to Energy facility is 200m from the proposed development. There is a vehicle test centre located along the site boundary. The R152 regional road runs along the site boundary and the M1 motorway is located a short distance away. There are a number of domestic dwellings located around the proposed site. There are also a number of businesses and a school in close proximity to the site.

iii. Public Consultation

It was understood from documents submitted as part of the planning application that a public meeting was held by SSE Generation Ireland Ltd. on 25th September 2018. Thirty members of the public and two councillors attended this meeting. Concerns surrounding emissions and noise were raised at this meeting.

The applicant stated in the planning report that these queries and concerns were taken on board and the applicant advised that they are in close contact with the community.

Details of the development and the process are outlined on the SSE website for members of the public.

Environmental Health Impacts

1. Emissions to Atmosphere

The principal emissions to atmosphere from the operation of the proposed OCGT plant will be combustion by-products from the gas turbine's combustion chambers and will include oxides of nitrogen, Sulphur Dioxide, Carbon Monoxide and Particulate Matter: PM10's and PM2.5's.

It is proposed to install 4 Open Cycle Gas Turbine units, each unit comprises two power turbines and each turbine will have an exhaust stack giving a total of 8 stacks (15m in height). The combustion turbines will be fuelled with a low sulphur distillate fuel oil which was specifically chosen to lower air emissions and best available technologies will be employed on site. Regular testing of fuel quality shall be carried out to ensure consistency with initial characterisation and the fuel suppliers shall be requested to provide a product supplier specification for the fuel used.

If the combustion by-products are not properly controlled, they would have an impact on ambient air quality and consequently human health and environment. The application documents advise that the emission limit values for gas turbines combustion by-products will comply with those specified in the Industrial Emission Directive 2010/75/EU and Best Available Techniques (BAT) Reference Document for large combustion plants 2017. The applicant proposes to monitor process parameters relevant to emission to air such as flow, oxygen content, temperature, pressure and water vapour content periodically. The applicant states that NOx, CO, SOx and dust will be monitored every 6 months. Emissions during start-up and shut-down (SUSD) will also be monitored during these events and these results will be used to estimate SUSD emissions throughout the year.

The application documents advise that the gas turbines are currently operating at sites in Co. Offaly and Co. Mayo and have been licensed by the EPA for a number of years. There is no emission limit value specified for SO_x or dust in these licences. The applicant advises that the Best Available Techniques (BAT) Reference Document for Large Combustion Plants 2017 is not applicable as the turbines are existing plant and will be operating for less than 1500 hours per year. For these reasons, the applicant does not propose any emission limit values for SO_x or dust. Emission limit values will be set for NO_x and CO.

A tank will be provided for the storage of hydrochloric solution on site. The report states that vapours released during off-loading and operation will be abated by using a caustic scrubber. The report advises that other emissions to air from fuel and caustic storage tanks and the back-up diesel generator will be minor in nature.

The site is located in close proximity to 2 Industrial Emissions licensed facilities; Indaver and Irish Cement. It is understood from the Environmental Report submitted for the planning application that air quality assessments including emission contributions from these nearby facilities were included in the predicted total ground level concentrations for the proposed development.

The applicant advises that the results of the Air Dispersion Modelling Assessment indicate there will be no significant impact to the air environment due to the discharges to air from the Gas Turbine Stacks. The applicant advises that it not necessary to employ specific mitigation measures to minimise or eliminate the potential impact.

2. Emissions to Water

The application documents advise that there will be no direct emissions to surface water from any of the unit operations at the proposed development. All on-site surface water shall be drained to oil interceptors which will retain hydrocarbons, it is proposed to discharge surface water at greenfield runoff rates to a drainage ditch at the site boundary. The drainage ditch will ultimately drain to the River Nanny 1.5km away. The report advises that there will be no increase in water volume discharging from the site.

3. Emissions to Sewer

It is understood that the operation of the OCGT plant will require water to control pollutant emissions. Water will be injected into the combustion chamber to reduce the peak flame temperature and thereby reduce the formation of NOx. The water evaporates in the chamber and is discharged in the exhaust gas, this process does not generate any waste water.

Water for this process will be supplied by public mains by Irish Water. Water usage for the proposal is expected to be 91,000 m^3/yr or up to 5m^3/hour of potable water.

The water used in this process first requires treatment to remove natural salts and waste water is generated during this demineralisation process. An on-site water treatment plant will be provided to carry out the demineralisation process. This wastewater effluent will contain naturally occurring inert salts (typically carbonates, chlorides, silicates, sulphates, calcium, magnesium or iron) at a concentrate of 8 to 10 times their normal levels. This water will undergo further treatment onsite and will be neutralised prior to discharge. The waste water will be monitored continuously for flow and pH prior to discharge to the public sewer. The applicant states that this discharge will be at ambient temperature and will not contain any hazardous pollutants. It will essentially comprise of salts removed during the demineralisation stage. Discharge rates can be controlled to comply with the discharge volume limits as required by Irish water, the proposed maximum discharge limit is 40m^3 per day.

Domestic waste water from on-site sanitary facilities will be discharged to the public sewer.

All waste water will be discharged through the public sewer to the Duleek Water Treatment Plant (WWTP).

A large volume of water appears to be required to operate the plant. The applicant does not discuss proposals to minimise potable water usage from the mains supply or discuss proposals to utilise other forms of water i.e rainwater harvesting etc.

4. Emissions to Ground

The application documents advise that there will be no emissions to the ground from the proposed development.

5. Waste Management

It is understood that the proposed development will not generate significant quantities of waste as there will be very few process wastes associated with the operation. A waste management programme will be implemented to properly manage waste on site.

The report advises that the principal types of waste generated by the OCGT plant will include waste from periodic plant maintenance and cleaning activities, used packaging/containers and general domestic waste. This waste shall be moved off site to existing local waste disposal and treatment facilities.
The document advises that waste oil/water will be collected in an underground storage tank from the combustion chambers and maintenance activities. This waste oil/water mixture will be pumped out as required by an appropriately licensed waste contractor for removal to a licensed waste management facility.

The applicant proposes to implement a waste management programme on site which will be based on the waste management hierarchy (prevention, minimisation, re-use, recycling, recovery, disposal). It is proposed that all waste generated on site will be handled, stored, transported off-site and treated/disposed off in accordance with statutory requirements and in a manner that minimises any risk to persons or the environment.

6. Noise

The environmental report assessed the impact of noise emissions from the proposed development. Background noise measurements of the existing environment were carried out. The applicant undertook predictive noise modelling to establish the potential impact of the development on noise levels at noise sensitive locations during the operational phase. The cumulative impact of the proposed development was assessed with other activities and developments in the area by combining the background noise monitoring results with the predicted noise impacts from the proposed development.

It was noted that the proposed development was considered as one project, i.e. the proposed OCGT Generating Plant and the proposed Substation have been assessed as a single project. However, the report goes on to state that there are no significant noise sources associated with the Substation.

The report advises that an assessment of potential vibration impacts were not considered as there will be no vibration associated with plant operations.

A baseline noise survey was carried out in line with the EPA's NG4 Guidance Note at 6 noise sensitive locations during daytime, evening and night time periods in July 2018. Tonal components in the background noise survey were identified at 2 locations during the survey and were associated with a motorbike and farm operations.

The report advises that there will be noise generating equipment (2 no. transformers and 4 no. OCGT generating units) and activities associated with the operation of the development.
The applicant carried out an assessment of the predicted operational noise levels using Bruel and Kjær Predictor software (Version 12.00) employing ISO 9613-2: 1996 *Acoustics - Attenuation of sound outdoors- Part 2: General Method of Calculation* (International Standards Organisation, 1996).
All existing noise sources in the vicinity were captured in the results of the baseline noise survey. The cumulative effect of the background noise and predicted noise due to the proposed development were calculated by adding the predicted noise contribution to the existing average ambient noise levels at the noise sensitive locations.

The report states that the existing daytime noise levels at the nearest noise sensitive locations are in excess of the predicted contribution from the proposed development. Therefore, noise levels associated with general site activity from the proposed development will not be perceptible.

The modelling predicts slight increases in noise levels in the evening period at 2 Noise sensitive locations. The report advises that these predicted increases will be barely perceptible and represent a negligible change.

The report advises that slight increases in noise levels are predicted at noise sensitive locations 3 and 4 during the night time period. The applicant suggests that these increases will be barely perceptible and represent a negligible change.

Minor increases in noise levels are predicted at noise sensitive location 5 in the night-time period. It is expected that the cumulative noise level will remain below 45dBA which is considered to be an acceptable night time noise level. It is also stated that there is a very low possibility of the facility operating at night (i.e. between the hours of 23.00 and 07.00) as these hours are outside peak electricity demand periods. The report states that the modelling did not predict tonal noise emissions. This monitoring will take place when the plant is in operation. The report also states that there has been no evidence of tonal noise from the units which are already in operation.

A number of mitigation measures to control noise emissions during the operational phase are proposed as follows:
- Equipment will be regularly inspected and maintained.
- Doors and windows to the area will be closed as much as possible in order to reduce noise emissions.
- Low noise equipment including compressors and pumps will be included in the detailed design of the plant especially where new equipment is being purchased.
- Screening is provided by buildings and tanks on site between combustion units and nearest noise sensitive locations.
- The combustion units are housed in acoustic environments.

The applicant states that operational noise levels are expected to comply with the EPA's licence boundary limits and significant adverse impacts are not predicted at noise sensitive locations.

6. Environmental Management

The applicant advises that they are committed to protecting the environment, preventing pollution and minimising adverse environmental impacts. The applicant proposes to implement a site specific environmental management system on site accredited to the ISO 14001: 2015 standard. This system will include detailed procedures for waste management, spill control, emergency response and management of hazardous materials at the facility and will be subject to both internal and external audits

Conclusions

1. The policy document "Ireland's Transition to a Low Carbon Energy Future" states that fossil fuels will be largely replaced with renewable energy sources in the long term and this in turn will lead to a reduction in Green House Gas production in Ireland.
   It is understood that whilst the proposed plant may be required in the short to medium term to support fluctuations in wind energy electricity supply, the applicant did not outline any plans for the longer term operation or de-commissioning of the plant.
   The long term operation of the proposed plant and continued production of green house gases may not be in line with the above policy and with Ireland's long term climate change strategy.

2. A large volume of water appears to be required to operate the plant. The applicant does not discuss proposals to minimise potable water usage from the mains supply or discuss proposals to utilise other forms of water i.e rainwater harvesting etc.

3. The noise chapter of this report advises that any noise emissions from the proposed new development should be barely perceptible and will comply with noise limits as defined by the EPA. The setting of an absolute noise emission level at a site boundary may not protect local residents from a noise nuisance. Noise levels should be monitored closely when the plant is in operation to verify the effectiveness of the proposed mitigation measures.

4. The environmental report does not detail any public complaints procedure. A procedure should be implemented to ensure that any complaints are investigated and addressed in a timely manner.

Carmel Lynch

Carmel Lynch
Environmental Health Officer

Lisa Maguire

Lisa Maguire
Environmental Health Officer

***All correspondence or any queries with regard to this report including acknowledgement of this report should be forwarded to Ms Elish O'Reilly, Principal Environmental Health Officer, Co. Clinic, Navan, Co. Meath.**