SSE Tarbert Next Generation Power Station

Environmental Impact Assessment Report (EIAR)
Volume I
Chapter 05 Description of the Proposed Development

SSE Generation Ireland Limited

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Delivering a better world

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5. Description of the Proposed Development

5.1 Introduction

This chapter of the Environmental Impact Assessment Report (EIAR) provides a detailed description of the Proposed Development, which consists of an Open Cycle Gas Turbine (OCGT) power plant, administration building and workshop, ancillary plant, site works, services, grid connection and demolition of ancillary buildings associated with the existing Tarbert Heavy Fuel Oil (HFO) Power Station on land within the SSE Tarbert site, in the townland of Tarbert Island, Co. Kerry (as described in more detail in Section 5.2).

The Proposed Development includes an OCGT (350MW) plant fuelled by Hydrotreated Vegetable Oil (HVO). The power output of the plant will be controlled and limited to a maximum of 350MW. The OCGT will be located within the existing established and operational SSE Tarbert site. The Proposed Development will include an overhead cable 75m in length, which will connect to an existing electrical substation to the south of the proposed OCGT building. There will be no alterations to the electricity transmission system outside of the Proposed Development Site as part of the Proposed Development.

The application boundary (Red Line Boundary) for the Proposed Development Site comprises an area of 15.18 hectares (ha.) and lies within the SSE Tarbert site ('SSE Tarbert'), which is an area of 42ha. with the majority of the area being under the control of SSE Generation Ireland Limited (here in referred to as 'the Applicant'). The Proposed Development will connect to an existing electrical substation within the Proposed Development Site.

The main objectives of the Proposed Development are:

- to support the security of electrical power supply.
- to support the continued expansion of Ireland's renewable generation capacity; and
- to provide support to the electricity supply system at times of peak demand and at times when other electricity generation sources are not sufficient to meet demand.

The Proposed Development will remain on stand-by for the majority of the time and will run to complement the Country's power generation technology, as required up to a maximum of 1800 hours per annum.

The construction phase of the Proposed Development is outlined in Section 5.3. A detailed construction programme will be determined by the appointed Contractors, in accordance with the proposed construction programme presented in Section 5.3.1.2. The proposed construction programme is presented in Section 5.3.1.2, including construction phases and key milestones and provides a robust basis for assessment purposes.

The Proposed Development will be assessed, and a review undertaken as to extending its operational life (depending on system need) or decommissioned. Upgrading / extending its operational life, is likely

to involve the replacement of key components such as the OCGT and will be subject to the applicable planning policy requirements at the time the works are intended to be carried out. A decision on extension of the operational lifetime or decommissioning of the Proposed Development is expected to be made after 25 years operation approximately, refer to Section 5.5.

This chapter of the EIAR describes the characteristics of the Proposed Development, together with the proposed design parameters. In accordance with Article 5(1)(a) of Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment, as amended by EIA Directive 2014/52/EU (EIA Directive), the description of the project must comprise:

'…information on the design, size and other relevant features of the project'.

This chapter of the EIAR is supported by figures which detail the Proposed Development layout and design[1], refer to Volume III of the EIAR. The following list are of some of the Planning Drawings submitted with this application, relevant to the EIAR.

- 60695232-TBT-DR-001 – Proposed Site Plan
- 60695232-TBT-DR-002A – Proposed existing site elevations
- 60695232-TBT-DR-002B – Proposed site elevations A, B, C, D
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- 60695232-TBT-DR-016 – HV connection and transformers, plan and elevations
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- 60695232-TBT-DR-020 – Proposed flood defence structures
- 60695232-TBT-DR-022 – Proposed Lighting overall plan

5.2 Components of the Proposed Development

The Proposed Development will consist of the following components:

- OCGT power plant (350MW) and associated building (40m x 57m x 30m high) including air intake.
- Emissions stack 55m in height (external diameter 9m) with continuous emissions monitoring systems (CEMS) platform.
- Selective Catalytic Reduction (SCR) with air intake filters, dilution fans, and skid.

[1] Note: Full scale drawings have been included in the Planning Statement and planning submission accompanying the EIAR.

- Generators fin fan coolers (OCGT) (23m x 6.4m x 6m high).
- Lube oil fin fan coolers (7m x 7.5m x 5m high).
- One unit transformer and one grid transformer with a firewall (20m x 0.6m x 15m high) separating.
- Fire suppression skid.
- Aqueous ammonia tank (2.5m diameter x 5m length).
- Propane gas tank and compound (2m diameter x 4.6m length).
- Demineralised water treatment plant (15m x 30m x 12m high).
- Demineralised water tanks (23m diameter x 18m high) (2 No. x 7,500m^3 capacity).
- Raw water and fire storage water tank (21m diameter x 17 high) (5,900m^3 capacity).
- Fire water module (10m x 10m x 8m high).
- HVO fuel storage tanks 3 No. tanks in total, 1 x 1500m^3 capacity (14m diameter by 10m high) and 2 x 4,400m^3 capacity (20m diameter x 14m high) with two unloading bays.
- Fuel polishing and transfer system building (20m x 15m x 8m high).
- HVO pipework (approximately 200m) underground in culverts
- Electrical connections from main transformer (unit) to an existing 220Kv substation (75m overhead cables).
- New wastewater treatment plant (underground).
- Administration building and workshop (40m x 13m x 5m high).
- Stores (25 x 12.5m x 10m high).
- Carparking (eight x spaces to the front of the administration and workshop building totalling 100m^2).
- Flood defence wall and gates; and
- Demolition works.

In connection with and in addition to the above, the following infrastructure will be included as part of the Proposed Development:

- Internal roads.
- CCTV.
- external lighting, including lighting columns (6m in height).
- security fencing (2.4m high) and gates (1.15m high); and
- utilities, pipes, cables and surface water drainage connecting to existing outfalls.

During the operational phase of the Proposed Development, HVO will be combusted as the fuel in a gas turbine (operating in open cycle mode) that drives a generator to produce electricity. The gas turbine utilises the Brayton thermodynamic cycle, using air as the working fluid. Air at atmospheric pressure enters the gas turbine compressor and is compressed before fuel and water is then added to the combustor. The resulting combustion flue gases are expanded across the turbine to drive the generator. The emissions reduction will occur via the SCR process, to meet relevant emission requirements, before emission release to the atmosphere via the stack.

The gas turbine technology proposed facilitates fast plant start-up durations and can provide response capability in a timely fashion to support sudden fluctuations in electricity demand on the electricity grid and to support security of supply. The Proposed Development will not exceed 350MW net electrical output, and this will be controlled through a plant management system.

The gas turbine and associated auxiliaries will utilise BAT (Best Available Technology) combustion technology to ensure that exhaust emissions to atmosphere comply with the relevant IE licence requirements. A Continuous Emissions Monitoring System (CEMS) will be provided on the flue gas emissions stack for monitoring in accordance with EPA requirements.

The Proposed Development will be available to operate 24-hours per day, seven days per week with the exception of periods of scheduled and unscheduled outage such as for maintenance activities. However, the expected operation of the plant will be non-continuous, operating only as and when required. The Proposed Development will operate during period when other sources of electricity generation are not capable of meeting demand.

The following section provides a description of the principal elements of the Proposed Development proposed plant, equipment, processes and operating procedures.

5.2.1 Open Cycle Gas Turbine (OCGT)

The technology proposed will be an Open Cycle Gas Turbine (OCGT) and generator package that will deliver 350MW of power generation to facilitate fast plant start-up durations and can provide response capabilities in a timely fashion to support sudden fluctuations in electricity supply to the electricity grid.

The proposed technology consists of a gas turbine generator being installed within a building 40m by 57m with a height of 30m. The gas turbine is connected to the generator on-site. Refer to drawing 60695232-TBT-DR-013.

A localised control module will be provided for the OCGT associated gas turbine power, electrical, and instrumentation, connected to the administration building proposed to be constructed to the west of the OCGT unit.

5.2.1.1 Air Intake

Large volumes of filtered air are required for efficient and reliable operation of the OCGT unit.

The air intake will draw in air via louvres on the southern facing wall surface of the OCGT building and will pass it through up to two layers of filtration during operation to remove entrained particles from the air. The air intake dimensions are 15m x 11.5m. These filters become loaded with entrained particles

and will require periodic cleaning or replacement, which will be undertaken when the OCGT unit is offline (refer to drawing 60695232-TBT-DR-013).

During cold weather, the air intake structures may be prone to icing up which reduces air flow through the structure and consequently the power output of the OCGT. To mitigate ice build-up on the structure it will incorporate de-icing equipment that will either use induction elements or hot air to warm the surface of the intake structure during operation. This system is only expected to operate when the OCGT is operational.

5.2.1.2 Emissions Stack

The proposed 1 no. emissions stack will be 55m high (the top of stack will be at 61.35m AOD) and 9m in external diameter (8m internal width) and will be constructed for the OCGT, in the north-west section of the Proposed Development Site, to the west of the existing Tarbert HFO Power Station building. The uppermost point of the flue will be stainless steel lined to prevent corrosion. Detailed air dispersion modelling has been carried out to inform the stack height and is discussed in Chapter 7 (Air Quality) EIAR Volume I. The proposed emissions stack is presented on the following Drawings, submitted with this application:

- 60695232-TBT-DR-001
- 60695232-TBT-DR-002B; and
- 60695232-TBT-DR-013

The emissions stack structure is designed to accommodate high emission gas temperatures. The stack will be double skinned with a layer of insulation between the inner and outer cylinders, this minimises heat transfer to the surrounding structure and reduces discolouration of the stack exterior over time.

A combination of the high exhaust gas temperature, low NOx content, and absence of visible combustion particulates mean that the proposed OCGT plant will not form a visible plume. The exhaust temperature is such that water vapour in the flue gas is unlikely to condense close to the stack structure before dispersal, even during times of very low ambient temperature.

The stack structure will include a CEMS. Emissions from the stack will be monitored continuously using the CEMS and reported in accordance with the requirements for the operation of the Proposed Development under the Industrial Emissions (IE) Licence.

5.2.1.3 Selective Catalytic Reduction

The OCGT will be fitted with SCR technology that will reduce nitrogen oxides (NO_X) emissions from the OCGT to meet emission levels. The SCR system removes NOX from flue gas emitted by the combustion process within the OCGT by injecting aqueous ammonia into the flue gas stream and passing it through a catalyst bed where the NO_X reacts with the ammonia to form nitrogen and water vapour (refer to drawing 60695232-TBT-DR-013).

In the OCGT plant, the flue gas will exit the turbine and pass through a SCR system before being released to the atmosphere via the 55m stack.

The hot exhaust gas, containing the products of combustion, excess air, and heat away from the gas turbine unit is routed via an exhaust system to the stack where it enters the SCR reactor. The exhaust gas streams pass over a metal catalyst (such as titanium oxide), which along with a reductant (aqueous ammonia), aids in the conversion of NOx into nitrogen and oxygen. The percentage of NOx reduction varies. Finally, the exhaust gas exits the reactor to the atmosphere.

5.2.1.4 Fin Fan Coolers

Two blocks of fin fan coolers will be positioned to the north-west of the OCGT. One block of fin fan coolers associated with the OCGT will have a length of 23m, a width of 6.4m and will be 6m in height, while the other for the lube oil will be 7m in length, 7.5m in width and 5m in height.

The fin fan coolers are necessary to provide cooling to the gas turbine oil and control oil systems, generators and transformers. The fin fan coolers circulate water in a closed loop, between these systems and the external radiators.

The coolers comprise variable speed fans that draw air over banks of finned tubes through which the hot water from the operational equipment is circulated. The finned tubes will be mounted horizontally and at a height above the ground to allow space for air to be drawn in from under the banks by the fans.

The speed of the fans varies to match the cooling requirements of the power generating equipment. This minimises the noise impact of the fans and reduces power load during operation. The location of the block of fin fan coolers, north-west of the OCGT, is shown on the following drawings (refer to EIAR Volume III), submitted with this application:

- 60695232-TBT-DR-001- Proposed Site Plan
- 60695232-TBT-DR-002C – Proposed site elevations (without flood wall) – A, B, C, D; and
- 60695232-TBT-DR-013 – Gas turbine unit, plan, section and elevations.

5.2.1.5 Main and Auxiliary Transformers

There will be one main and one auxiliary transformer separated by a firewall (20m in length x 0.6m in width and 15m in height). Power generated by the gas turbine generator will be exported to the switchgear infrastructure and conveyed in overhead cables of 75m in length to the existing 220Kv substation on the SSE Tarbert site (refer to drawing 60695232-TBT-DR-016).

5.2.1.6 Fire Suppression

The OCGT is installed in ventilated and acoustical insulated building. In the event of a fire or significant fuel build up in the OCGT building an inert gas purging system will be initiated to displace air.

An inert gas will be used for fire suppression. This will be stored in a bank of pressurised cylinders.

5.2.1.7 Services (inc. Electrical Cabling)

There will be service cables (fuel supply line and electrical cabling) associated with the Proposed Development both underground (culverts) and overground (pipe / cable racks).

There will also be existing services that are within the Proposed Development Site which will continue to remain in situ, and not be rerouted or removed. This includes the existing high voltage cabling that

runs north-south within the Proposed Development Site and along the southern boundary of the substation. There is currently a planning application submitted by EirGrid in the system for determination in relation to works to these cables (Planning Ref. 23350), refer to Table 4.2 in Chapter 4, EIAR Volume I for more details. The Proposed Development is not reliant upon the permission or development of the EirGrid application.

The majority of the new HVO pipeline will be above ground with a short section (approximately 22m) laid underground to connect to the OCGT. HVO will be forwarded from the storage tanks to the proposed OCGT via the fuel polishing and transfer system in pipework 190m in length.

Electricity cabling of 75m will be overhead between the transformer and the substation. Refer to drawing 60695232-TBT-DR-005 – Site services layout, for more details.

5.2.1.8 Fuel Supply

The Proposed Development will run on Hydrotreated Vegetable Oil (HVO), which is a biofuel that is produced by processing waste oils to create a fossil-free alternative to distillate-oil in accordance with European Union (EU) sustainability standards. HVO provides a transitional step away from fossil fuels and a move towards a more decarbonised power system by providing dispatchable capacity to support the variable nature of renewable energy generation. It has lower greenhouse gas emissions profile across its lifetime when compared to non-biogenic alternatives such as diesel or natural gas combustion (refer to EIAR Chapter 17, Volume I).

The Proposed Development supports an orderly transition to a low-carbon world whilst also tackling Ireland's security of electricity supply challenges.

SSE is committed to sourcing HVO that is third party Certified to Directive (EU) 2018/2001of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources 'Renewable Energy Directive III (RED-II) under the International Sustainability and Carbon Certification (ISCC). HVO will be sourced from 100% waste feedstocks, the raw materials for which are grown on a seasonal basis so there is no long-term "carbon debt". Supplied HVO will comply with the RED II (Directive (EU) 2018/2001) which provides specific sustainability criteria and the carbon intensity of individual biofuels, including an assessment of the feedstocks used and the emissions from its production, processing and supply, and will be certified accordingly by a third party. There are a number of HVO suppliers in Ireland that are certified in line with ISCC and RED II, which provide HVO for various uses. The Applicant will source its HVO from any one or more of these suppliers.

There will be three HVO storage tanks to provide capacity for up to 84 operating hours (combined volume of up to 10,300m^3). The HVO will be pumped through the fuel polishing system to ensure it is within the required specification for the generation units. This system passes the fuel through a series of filters to remove particulates and water before returning it to the tank. The separated water and particulates are stored in a separate small tank for off-site disposal as required.

5.2.2 HVO Pipework

HVO pipework (approximately 200m in length) will form part of the Proposed Development. The majority of this pipework will be underground in culverts, with only a short section (approximately 22m) being laid above ground, refer to drawing 60695232-TBT-DR-005.

5.2.3 Administration Building, Workshop, Stores and Car Parking

A new administration building with workshop and car parking is proposed to the west of the OCGT. This building will provide a combination of administration office space and workshops for the Proposed Development (40m x 13m x 5m high), refer to drawing 60695232-TBT-DR-009.

The new car parking provided to the front of the administration and workshop building will include eight parking spaces (100m^2). This will be in addition to the existing car park to the north-east of the SSE Tarbert Site.

5.2.4 Flood Defence

Flood defence measures will be constructed in close proximity to the main OCGT unit and be incorporated into the OCGT building in parts. The infrastructure design will incorporate flood gates which can be opened and closed as required and will be managed by the site operational team. The flood defence measures will consist of concrete walls 7.54m ordnance datum Poolbeg (ODP) in height (approximately 1.5m in height above ground). Details of which are shown in Appendix 12A and Appendix 12B, EIAR Volume II and in drawings 60695232-TBT-DR-019 and 60695232-TBT-DR-020.

5.2.5 Water Supply

Mains water will produce demineralised water which will be injected into the gas turbine combustors for NOx control. The water injected will be discharged in the exhaust gases through the stack. Demineralised water will be produced in an on-site Water Treatment Plant (WTP) (refer to drawing 60695232-TBT-DR-011). It is expected that in operation the Proposed Development will require up to 150m^3 per hour of demineralised water.

Mains water will also be used for firefighting purposes. This will be supplied from a dedicated system supplied from a common firewater / water storage tank of approximately 5,900m^3.

Water will be supplied to the Site via the existing mains connection which enters the on-site reservoir located to the east of the Tarbert HFO Power Station.

5.2.6 Wastewater Management

5.2.6.1 Surface Water Management

Surface water runoff will be generated from all hard surfaces within the Site which are exposed to rainwater or to which water is applied during wash down (process of cleaning a surface for appearance, sanitation, or removal of contamination which can require the use of detergents and other chemicals). This will include all hardstanding surfaces, roofs, and other impermeable surfaces.

The impermeable areas contributing to surface water drainage systems will include roofed, bunded and road / concrete areas. The surface water collected from the Site by means of the underground drainage

network will first be conveyed to a full retention oil separator and then to attenuation storage with a combination of 990m^3 below ground with an additional 1410m^3 above ground storage, required during the extreme storm events and variable sea levels coinciding. All either existing or proposed outfalls and drainage outlets require flap valves or flood gates to prevent backflow during extreme events. Refer to EIAR Volume II Appendix 12B for more details.

5.2.6.2 Foul Water Management

The drainage strategy has been developed with reference to current good practice and to provide separate foul and surface water drainage networks within the Site. A new wastewater treatment plant will be installed at the Site, to the north-west of the demineralisation water tanks (refer to Appendix 5C for more details).

The Proposed Development will not lead to an increase in staff and therefore there will be no additional foul water generated (either from sanitation or process water) and as a result there will be no requirement for increased foul water management at the Site over and above existing facilities.

5.2.6.3 Process Wastewaters

Production of demineralised water will result in process wastewater which will be discharged to the surface water drainage system. The wastewater will contain the naturally occurring minerals removed from the mains water. Wastewater will be treated to adjust the pH to neutral range before discharge to an existing discharge point which is located to the north of the Site and known as Outfall SE9. This discharge will be regulated under the IE Licence.

HVO contains low levels of impurities which are removed prior to use in the OCGT by means of a fuel polishing system. Waste generated by the fuel polishing system will be stored in a tank. The waste from the tank will contain hydrocarbons and will periodically be disposed offsite by road tanker in compliance with the Waste Management Act 1996 (as amended), and associated regulations.

The internal blading of the gas turbine accumulates deposits from the air over time which requires periodic washing. The frequency of washing is a function of operating hours and ambient air characteristics. The turbine is rotated slowly in a water and detergent solution. Wastewater generated from blade washing will be collected in a dedicated drain tank for disposal offsite by road tanker in compliance with the Waste Management Act 1996, and associated regulations for disposal.

5.2.7 Firefighting Systems and Controls

A comprehensive fire detection and firefighting system will be provided for the Proposed Development.

Heat, fire, and gas detection systems will be incorporated as appropriate to the fire risk. Where required, flame detection will also be installed.

Firefighting on-site in addition to the fixed suppression systems and other measures, will be carried out by manual fire suppression using a fire water hydrant network. A new fire water hydrant network will be installed for the protection of the equipment as required by the local fire authority. Fire safety evacuation drills and training to be provided as appropriate. National Fire Protection Association (NFPA) guidance will be followed as appropriate.

Portable extinguishers appropriate to the fire risk will be sited at readily accessible fire points throughout the Site.

Fire water discharges will be collected in the surface drainage system and will be tested before being discharged from the Site either after passing through the drainage interceptors or tankered off site depending upon the quality.

5.2.8 Chemical Storage

All chemicals and oils stored on the Proposed Development Site will be regulated under the IE licence. A number of chemicals and oils will be stored on-site, including;

- HVO.
- Lubrication Oils (for the gas turbine, gas compressor, pumps etc).
- Inert gas (e.g., CO_2) bottles (for fire suppression).
- Hydrogen Bottles (Generator Cooling).
- Propane gas as the start-up fuel.
- Aqueous ammonia.
- Compressor cleaning detergent; and
- General oils and greases for rotating machinery.

All chemicals and oils will be stored in suitably bunded areas (approximately 4980m^3 in total) and with weather protection.

The chemical tanks specific to the demineralised Water Treatment Plant will be contained within a bund adjacent to the water treatment plant building.

All fuels and chemicals stored on-site will be subject to a COSHH (Control of Substances Hazardous to Health) assessment and compliance with the requirements of Regulation EC 1907/2006[2] Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH):

- all containers and bunds will be inspected regularly.
- accidental spillages will be contained and cleaned immediately.
- spill kit(s) will be stored and available on site; and
- all potentially polluting substances including waste will be stored in designated areas in appropriate containers within bunds, drip trays or spill pallets, as required.

All tanks containing liquids whose spillage could be harmful to the environment will be bunded. No tanks or pipework containing liquids such as fuel, oils or chemicals will be stored below ground.

[2] EUR-Lex - 32006R1907 - EN - EUR-Lex (europa.eu)

5.2.9 External Lighting

External lighting (for operational phase) will provide safe working conditions in all areas of the Site whilst reducing light pollution and visual impact on the local environment. This will be achieved by the use of luminaries that eliminate the escape of light in directions not required.

Detailed lighting design is provided in drawing 60695232-TBT-DR-022 and Appendix 5B, EIAR Volume II.

5.2.10 Demolition Works

As part of the construction phase and site preparation, the works will include the demolition and removal of ancillary buildings/structures associated with the existing Tarbert HFO Power Station as follows (but not the Tarbert HFO Power Station building) refer to drawing 60695232-TBT-DR-004:

- Carpenters workshop (1200m^3).
- Boiler ash and brickwork
- Water treatment plant (9500m^3).
- Wastewater treatment plant
- Demin tank
- Fuel lines
- Contractor / Canteen building (3300m^3).
- Boiler wash open top storage tank (5,500m^3).
- Mechanical workshop
- Chemical storage bund(175m^3).
- Shot blasting shed.
- Lube oil store (2800m^3); and
- Site toilets (300m^3).

Tarbert HFO Power Station is due to close by the end of 2023 as it selected the Limited Lifetime Derogation under the Industrial Emission Directive (IED). As the Tarbert HFO Power Station is an EPA licenced facility, a site closure and restoration/aftercare plan is required to be in place and be to the satisfaction of and agreed with the EPA. The site closure plan falls under the remit of the existing Tarbert HFO Power Station Industrial Emissions Licence (IEL).

Refer to Chapter 18 Waste Management, EIAR Volume I and Appendix 18A, EIAR Volume II for more details.

5.3 Construction Phase

5.3.1 Construction Phase and Construction Works

The Applicant will appoint Contractors for the main construction works and to undertake the specific construction works and civil works. The construction phase of the Proposed Development will comprise:

- Site clearance including demolition of some existing structures and services.
- Temporary construction and laydown areas (hardstanding), open storage areas, temporary facilities and plant storage areas.
- Construction compound including the staff offices and welfare facilities.
- Ground preparations and other civil works, e.g., foundations[3], tanks, drainage etc.
- Mechanical and electrical works associated with new plant build.
- Temporary vehicle parking facilities.
- Security fencing/gates.
- Lighting and signage; and
- Commissioning and testing of plant.

The construction equipment required for these works will vary depending upon activity but will include cranes, generators, excavators, loaders, trucks, trailers, vans, piling rig etc.

Foundation construction will require piling, the piling technique assessed within this EIAR involves the use of a hydraulic hammer rig (refer to Chapter 11, EIAR Volume I for the assessment). The piling technique will involve a hydraulically accelerated piling hammer to drive load-bearing piles or assist pile driving to a depth of between 10 – 15m dependent upon the structural loading required of each proposed OCGT component. The precise size and configuration of piles will be finalised by an appointed contractor and will be within the paraments set out in this planning application.

5.3.1.1 Construction Environmental Management Plan (CEMP)

A CEMP has been prepared as part of this planning submission. The CEMP will be updated by the developer in consultation with the local authority to incorporate any requirements of the grant of planning permission and any other updates as appropriate. The CEMP is presented in Appendix 5A, EIAR Volume II.

The Contractor's CEMP will detail the Contractor's overall management and administration of the works. The CEMP will also include any commitments included within the statutory approvals. The CEMP will be a key construction contract document and the contractor will be obliged to implement it in full.

The CEMP will be treated as a live document throughout the lifecycle of the Proposed Development, requiring regular review and update as necessary within the parameters presented in the EIAR, unless otherwise agreed in consultation with the local authority.

[3] Refer to EIAR Volume I Chapter 11 for more information.

5.3.1.2 Construction Schedule

The construction phase of the Proposed Development will be approximately 29 months. The appointed Contractor will indicate the duration of construction works in the Contractor's CEMP within the parameters assessed in the EIAR. The CEMP will be agreed with Kerry County Council (KCC) prior to construction commencing.

Table 5.1: Development Phases

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Activities	Mobilisation and Site Prep																												
			Demolition Works																										
							Construction Works																						
																									Fuelling and Commissioning				

5.3.1.3 Site Management - Construction Hours, Staffing, Access and Parking

Construction Hours

Construction phase works will take place between the hours of 0700hrs to 1900hrs (Monday to Friday) and 0800hrs to 1500hrs (Saturday). No works shall take place on Sundays or Bank Holidays.

Construction works outside these hours will only take place in exceptional circumstances (i.e., for specific engineering works e.g., concrete pours, commissioning and testing, etc.), and this will be agreed in advance with KCC. It is likely that some construction phase works, such as concrete pours will also be required to be for 24 hours, for limited durations. In these exceptional cases, requests may be made to KCC to seek permission for works to proceed outside the above times / days. Work conducted outside of core hours, will comply with any restrictions agreed with the planning authorities, in particular regarding the control of noise and traffic.

Staffing

Levels of employment will vary throughout the construction phase. The peak work force is expected to be up to 200 personnel per day estimated to be over an 11-month period during the construction programme, with varying degrees of personnel associated with the other 20 months of the programme including the site set up, mobilisation, demobilisation and commissioning (refer to EIAR Volume I, Chapter 14 for more details).

Staff will comprise engineering, management, skilled and semi-skilled workers during the 29-month construction programme. A number of indirect employment opportunities will be created in a variety of different trades as a result of the construction of the Proposed Development.

Site Access

The Proposed Development construction traffic will use both the existing main SSE Tarbert site gated entrances (northern entrance) to the Site and the southern access off the N67 Road.

It is anticipated that the extent of Heavy-Duty Vehicle (HDV) movements will vary throughout the construction phase works, in response to the specific construction activities taking place.

Months 12 to 22 will observe the highest number of staff vehicle arrivals on Site with a maximum of 200 staff on Site at once, this will equate to 133 staff light duty vehicles (LDVs) arriving to Site each day during the peak months based on a 1.5 car occupancy. HDV movements are expected to peak in Months 28 – 29 with a total of 22 HDV arrival each day. This results in peak construction trip generation of 278 total two-way vehicle trips per day.

Security

The Site of the Proposed Development will be separated from the Temporary Emergency Generation (TEG) plant area which is within the SSE Tarbert site but not within the Proposed Development Site (refer to EIAR Volume I, Chapter 1 for more details). The appointed Contractors will control all aspects of Proposed Development Site security in related to the Proposed Development.

The Proposed Development will be located within the confines of the existing SSE Tarbert site and will be securely fenced and monitored at all times by CCTV surveillance.

Parking

Employment levels will vary throughout the construction phase, and it is expected that peak staffing levels will occur from months 12 to 22, when 200 no. staff will be required, equating to 278 two-way Light Duty Vehicle (LDV) trips. Parking will be available on-site for construction staff vehicles and will be provided at one of the on-site construction compounds.

5.3.1.4 Construction Compounds

The proposed location of the construction compounds are shown within Appendix 5A, EIAR Volume II. The construction compounds will be secured with temporary fencing and will accommodate employee parking throughout the construction period and will include additional laydown facilities, staff welfare facilities and temporary services on the Site. Access to the construction compounds will be security controlled and all Site visitors will be required to sign in on arrival and sign out on departure.

The construction compounds will not be for long-term storage of materials, and storage but will be for the duration of the construction phase only. The existing Tarbert HFO Power Station building will be utilised for office space, storage and laydown were possible.

Lighting

A lighting arrangement will be provided to ensure a safe work environment for construction staff. Outdoor lighting will be minimised to that required to meet health and safety requirements. Lighting will consist of LED luminaires due to their sharp cut-off, lower intensity, good colour rendition and dimming capability. A warm white spectrum will be adopted to reduce blue light component. Light spill will be controlled by the use of luminaires.

5.3.1.5 Health and Safety (H&S)

The Applicant recognises and accepts its responsibilities for ensuring the health, safety and welfare of its employees, contractors, visitors, and members of the public who could be affected by its activities; it is committed to safety and always executes the highest safety standards, whilst also ensuring compliance with all applicable Irish health, safety and environmental laws and regulations.

A comprehensive Health & Safety programme will be implemented to minimise any risks to and ensure the health and safety of construction personnel, site visitors and any local residents.

The Applicant manages any environmental impacts or risks by applying and continually improving a Safety, Health and Environment (SHE) Management System. This SHE management system is accredited to international standard ISO 14001:2015 Environmental Management System

First aid facilities, for the use of all construction staff, will be provided in the form of a fully provisioned first aid area within the Site office with lifesaving and safety equipment as required by relevant statues, authorities and awards will be maintained at all times by the Contractor.

The Proposed Development will comply with all H&S Regulations during the construction phase. Where possible, potential risks will be omitted from the design so that the impact on the construction phase will be reduced.

5.3.1.6 Construction Waste

During the construction phase, the Proposed Development will generate a range of non-hazardous and hazardous waste (e.g., oils and chemicals) materials. Waste materials will be required to be temporarily stored on-site pending collection by a waste contractor. The appointed Contractor will endeavour to ensure that material is reused or recovered offsite insofar as is reasonably practicable or disposed of at authorised facility.

The CEMP includes design and construction measures that apply the waste hierarchy principles and minimise effects on waste. These include:

- Planning for the temporary on-site storage of soils, excavated materials and other materials to facilitate reuse.
- Reusing excavated materials within the construction of the Proposed Development, where possible, to minimise the need to import and export material.
- Considering the importation to site of recycled aggregate material, as an alternative to primary aggregate, and establishing procedures to ensure it is uncontaminated.
- Establishing Key Performance Indicators (KPIs) for monitoring and reporting data on waste arising and diversion from landfill.

5.3.1.7 General Mitigation Measures

Works will be undertaken in accordance with the following environmental management technical guidance documents:

- CIRIA[4] (2001). *Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors (C532).*
- CIRIA (2006). *Control of water pollution from linear construction projects. Technical guidance (C648*).
- CIRIA (2016). *Environmental Good Practice on site pocketbook (C762).*
- EPA (2021). *Best Practice Guidelines for The Preparation of Resource Management Plans for Construction & Demolition Projects*.

5.4 Operational (inc. Commissioning) Phase

5.4.1 Industrial Emissions (IE) Licence

The Proposed Development will comply with the requirements of the *EU (Large Combustion Plants) Regulations 2012, S.I. No. 566 of 2012*, under an Industrial Emissions (IE) Licence (to be applied for). Any emissions which have the potential to impact to air, soil, surface water and groundwater and human health, will be mitigated against and avoided where possible.

[4] Construction Industry Research and Information Association

The SSE Tarbert Environment Management System (EMS) will be amended to include the Proposed Development. The EMS will set out the requirements and procedures required to ensure that the Proposed Development is operating to appropriate standards.

Environmental monitoring (including analysis of pollutants) will be carried out, where required, including monitoring of exhaust emissions levels using Continuous Emission Monitoring Systems (CEMS) prior to discharge from the flue gas emissions stack, in accordance with the IE Licence.

5.4.2 Start-Up and Shutdown

The Proposed Development will start-up and shutdown in response to the requirements of the electricity grid operator (EirGrid) request for power to the grid.

The Proposed Development is specifically designed to start-up, shutdown and change its output rapidly (350MW) in response to the requirements for power from the electricity grid.

5.4.3 Commissioning

The commissioning phase will be similar to the operational phase of the Proposed Development but may have a greater number of start-ups and shutdowns over the commissioning phase.

The hot commissioning phase takes place once fuel is available and connected to the OCGT Plant. Commissioning involves operating the OCGT Plant with fuel and verifying that the whole system functions correctly. Performance testing will be included at the end of this period to verify that the facility meets its contractual performance guarantees.

5.4.4 Operational Phase Staffing

During the operational phase, the Proposed Development will be operated, maintained and managed by up to 14 suitably qualified personnel.

There is likely to be a high degree of automation with the OCGT Plant, with processes controlled from the administration building.

5.4.5 Operational Phase Maintenance

Routine maintenance will be carried out in accordance with the maintenance procedures provided by the contractor and manufacturer. The Proposed Development will be required to undertake periodic inspections, as per the manufacturer's requirements. During this time the Proposed Development will be shut down to allow the inspection to be completed (by the manufacturer's personnel or other maintenance professionals).

These works will generally take place during the summer months, when demand for the Proposed Development is at its lowest. Generally, balance of plant maintenance is also undertaken in this period.

There is also the possibility of non-routine maintenance i.e., breakdowns. These will be dealt with in an efficient ad-hoc manner and are most likely to be of a similar or smaller scale than routine maintenance works.

5.4.6 Health and Safety - Emergency Planning

A site-specific Health and Safety (H&S) Plan will be included in the Contractor's CEMP prior to construction phase and will include commissioning procedures to ensure compliance with relevant health and safety legislation.

Measures to prevent the risk of fires, spillages, floods, and other major incidents are embedded in the design of the Proposed Development.

Measures to prevent potentially major incidents include:

- Hazardous and polluting liquids such as transformer oils will be stored in tanks located in bunds.
- HVO fuel unloading bay will be designed to contain spillages.
- Storage tank level indicators and oil detection sensors in bunds will be provided with alarms.
- Class 1 full retention Oil Water Separator will be provided in the surface water drainage system.
- Measures to isolate the surface water drainage system will be provided to prevent discharge of contaminated water.

The Applicant will ensure that operating, maintenance, and emergency response procedures and manuals will be subject to regular review and will be updated to reflect best industry practice, or to reflect the addition of new procedures, equipment or other facilities.

Operational procedures will be in place that will clearly outline responsibilities and the appropriate communication channels for operational staff / site personnel. Operational phase employees will receive the appropriate training required for their role, including responding to emergency events such as fires and floods etc. These operational measures will be included in the EMS and regulated by EPA through the IE Licence.

5.4.7 Operational Traffic and Transport

Full details on operational phase traffic movements are detailed in EIAR Chapter 14 (Traffic and Transport).

During the operational phase of the Proposed Development, the Site will generate approximately 38 arrival trips per day and is considered to not have any major impact on the surrounding road network.

During the operational phase, the OCGT will run only on HVO. HVO will be delivered to the Site by HDV road tankers. During the operational phase, there will be limited vehicle movements associated with the supply of HVO for the Proposed Development, owing to the fact the Proposed Development will only be used during periods when other sources of electricity generation are unable to meet demand.

In an emergency situation when other sources of electricity generation are unable to meet demand, there may be the requirement for HDV fuel deliveries (vehicle movements from one source) with up to 18 HDV arrivals on-site per day for the emergency running period, followed by 21 delivery days of 18 HDV arrivals on-site per day for replenishment of the fuel stock (refer to Chapter 14, EIAR Volume I for more details). However, this is not expected to be a regular occurrence. Fuel delivery will be limited to

the hours between 0700 and 1900, and no deliveries will take place on Sundays or at night, except in the case of extended emergency operations.

5.5 Decommissioning Phase

It is expected that the Proposed Development will have a design life of at least 25 years after commissioning. After 25 years in operation, the Proposed Development will either be upgraded to extend its operational life or it may be decommissioned, depending on the national grid requirement. A decision on whether to extend the operational lifetime or to decommission the Proposed Development will be expected to be made before the equipment reaches 25 operational years.

Where decommissioning takes place, all above-ground components associated with the Proposed Development will be disassembled and removed from the Site. However, prior to the removal of plant, all residues and operating chemicals will be cleaned out from the plant and disposed of at a suitably licenced facility. The majority of the equipment will have some limited residual value as scrap or recyclable materials and will be recycled at the time.

Contamination prevention is a requirement of the IE Licence during the operational phase. Therefore, the Proposed Development has been designed to prevent new areas of ground contamination or pathways to receptors as a result of construction or operation. Once the plant and equipment have been removed to ground level the hardstanding and sealed concrete areas will be left in place.

The decommissioning process will consider the potential environmental risks at the Site and provide guidance and appropriate mitigation procedures in agreement with the EPA, to minimise risk.

During the decommissioning phase there will be the need for a Site office and staff facilities to be located on-site. The decommissioning will include an outline programme of works and ensure that decommissioning phase activities will be conducted in accordance with the appropriate guidance and legislation.

5.6 References

Construction Industry Research and Information Association (CIRIA) (2001). Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors (C532).

Construction Industry Research and Information Association (CIRIA) (2006). Control of water pollution from linear construction projects. Technical guidance (C648).

Construction Industry Research and Information Association (CIRIA) (2016). Environmental Good Practice on site pocketbook (C762).

Environmental Protection Agency (EPA) (2021). Best Practice Guidelines for The Preparation of Resource Management Plans for Construction & Demolition Projects.

Environmental Protection Agency (EPA) (2022). Guidelines on the Information to be contained in Environmental Impacts Assessment Reports.

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