Energy for generations

Green Atlantic @ Moneypoint Concept Document

Draft for Public Consultation

Issue date: July 2025

Contents

1 ESB at Moneypoint

1 ESB at Moneypoint

Located in the mouth of the Shannon Estuary with immediate access to the deep waters of the estuary and Ireland's Atlantic coast, the 245 ha ESB landbank at Moneypoint in County Clare is one of Ireland's most important strategic industrial landbanks. – see Figure 1.

Figures 1 - Strategic Context of ESB Lands at Moneypoint, Co. Clare

ESB developed a 900MW coal fired power-station at Moneypoint as part of the State's strategy to diversify from oil-dependent electricity generation. The development took advantage of the features of the site – natural rock foundations and the deep water access, which suited the development of the large station complex and a port capable of accommodating marine vessels up to 250,000 tonnes.

From its commissioning in 1985, Moneypoint has operated as the State's only coal fuelled power station, meeting on average 25% of national electricity demand. The Station has responded to national demand for electricity – particularly during unscheduled outages of other major generating stations, the Covid-19 pandemic and the prevailing energy crisis and remains an important electricity generation asset. In line with ESB's move towards a clean energy future, in the mid 2010's a windfarm was developed on the Moneypoint site, introducing renewable energy generation to the site. More recently, ESB announced that coal fired generation at Moneypoint would cease in 2025; and has received the necessary consents to switch Moneypoint to an on-demand lower carbon operating profile, operating until 2029. This will ensure Moneypoint supports security of supply for Ireland, pending the development of new low and zero carbon dispatchable generation and large-scale renewables.

ESB has also developed plans for the development of the site to accommodate new lower carbon generation capacity; energy storage; and a new renewable energy hub – known as the **'Green Atlantic @ Moneypoint' Programme.** This landmark multi-year project will be key to ESB's emergence as a leader in green energy production and is key to the Company's 'Net Zero by 2040' strategy.

2 Characteristics of the Moneypoint Lands

2 Characteristics of the Moneypoint Lands

2.1 Location and Setting

Figure 2 shows the extent of ESB's current landholding in the area – comprising the 180 ha on-shore landbank and the 65.24 ha foreshore area.

The subject lands are located on the northern shore of the Shannon Estuary in Co. Clare, approximately 3km west of Killimer and 6 km south-east of Kilrush. The Shannon ferry between Killimer Ferry terminal and Tarbert Island links the N67 north and south of the estuary. The N68 (Kilrush – Ennis) runs approximately 5km to the northwest of the site. There is an established network of regional roads also serving the wider area.

Figure 2 - ESB Owned Lands at Moneypoint

The Shannon Estuary is a multi-functional zone supporting a wide range of activities – including port functions, aquaculture / fishing, marine tourism, recreation / leisure activities, industry / business, energy generation, fuel storage, aviation, agriculture, ecological habitats, landscape features and architectural heritage. Key strategic infrastructure in the Estuary includes the electricity generating stations at Moneypoint and Tarbert, Shannon Foynes Port, Shannon Airport, and Tarbert ferry terminal – see Figure 3.

The Shannon Foynes Port – located some 20km to the east of the Moneypoint site and on the southern side of the Estuary, is proposed for expansion and re-development in-line with the Shannon Foynes Port Company Vision 2041 strategy, which will drive significant change in the broader Shannon Estuary.

Figure 3 - ESB Lands at Moneypoint and features of note in the western portion of the Shannon Estuary Region

2.2 Boundaries and Topography

The site comprises two parcels of land on either side of the Kilrush-Killimer road (N67). The main station site (c.130 ha) is located to the south of the N67 and the Ash Storage Area (ASA) (c.50 ha) to the north-west where it adjoins the shoreline of Ballymacrinan Bay. The two areas are inter-connected by a service road running beneath the public road.

The northern and eastern boundaries are adjacent to agricultural land. The southern and western boundaries are defined by the River Shannon Estuary and associated coastal infrastructure including the jetty.

Existing access to the Moneypoint Generating Station is from the primary entrance / exit from the N67, located in the northwest of the site. The secondary entrance to the ASA from the N67 is gate controlled from the public road. The service road linking the main station site and the ASA area runs under the N67 via a dedicated tunnel. A third, temporary construction entrance, to the east of the main entrance, has been periodically utilised.

The land profile of the site is man-made with the topography of the site having been significantly altered through its development and management. The land naturally rises from the coast up towards the N67. Frontage onto the N67 provides minimal views, due to the presence of screen planting, boundary fencing and the sloping of the site southwards towards the coast.

Approximately 24 ha of land were reclaimed from the foreshore during the construction of the station.

2.3 Operational Consents and Licences

There are a number of planning consents in place for operational developments located at Moneypoint, many of which are decades old. Overall, the planning history of the site indicates a strong history of industrial development and activity on the site.

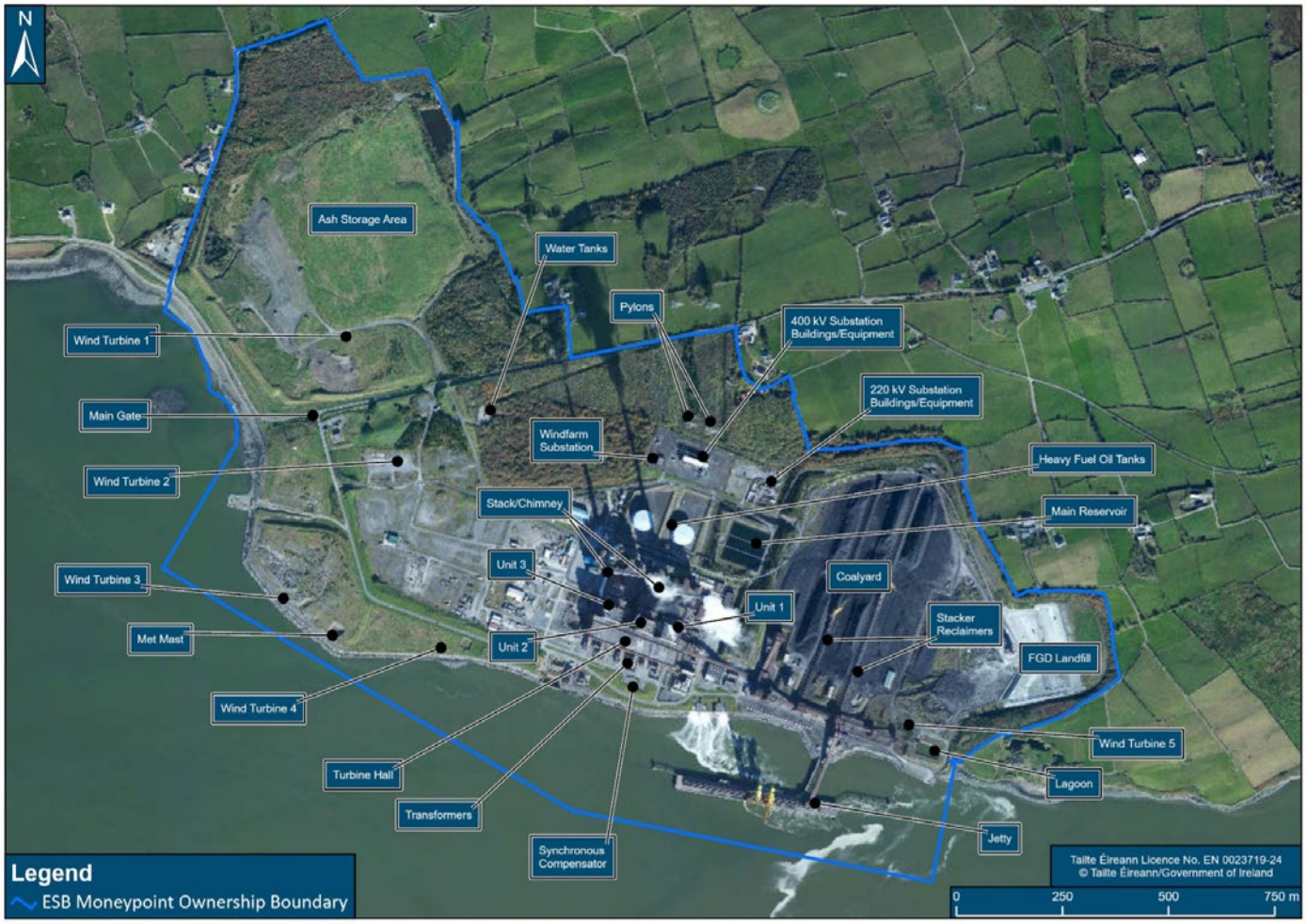
The site is also licenced by the Environmental Protection Agency (EPA) under an Industrial Emissions (IE) Licence [Ref. P0605-04]. The IE licence authorises the combustion of fuels in an installation with a total thermal input of 50MW or more; and the landfilling of specific waste streams. Under the IE Licence, there are strict conditions on how the site must operate, and limits on emissions such as those to air, water, dust and noise; and environmental monitoring of the site is on-going.

The site is operated in accordance with an Environmental Management System (EMS). It is an Upper Tier COMAH (Control of Major Accident Hazards) site; and operates in accordance with a Greenhouse Gas Emissions (GHG) Permit (Permit Register Number IE-GHG070-10381-6).

2.4 Existing Operations and Land-uses

The site largely comprises brownfield lands with long established industrial uses, directly associated with the operation of Moneypoint coal fired Generating Station, related ancillary activities, and the transmission of electricity, see Figure 4.

Figure 4 - Moneypoint Existing Land-Uses



Key features of the site include:

- The 900 MW **Moneypoint generating station** located to the south of the N67;
- Open air **coal storage area** – which will be subject of a phased rehabilitation programme;
- 2 No. **heavy fuel oil (HFO) storage tanks**, with capacity for 50,000 tonnes of HFO;
- A managed **ASA** to the north of the N67 where ash is disposed of within a lined and capped storage areal;
- The **Flue Gas Desulphurisation (FGC) disposal / storage area** to the east of the site, where material generated by the air emissions control equipment is disposed of;
- 2 No. reinforced concrete **chimneys** (or stacks) c.225m tall;

- a **jetty and coal unloading facilities** used exclusively for ESB operations, which serves as the delivery point for coal and oil to the site
- a **windfarm** on the western side of the site – which comprises 5 No. 3.45MW wind turbines, 2 No. anemometer masts, and associated development;
- a **Synchronous Compensator** - used to manage the stability of the national grid;
- **electricity transmission and distribution infrastructure** – including 400kV, 220kV and 110kV substations and overhead line infrastructure; an existing 220kV submarine cable connecting Kilpaddoge and Moneypoint substations; and the 400kV Cross Shannon cable (under development) which comes ashore on the eastern part of the Moneypoint site;
- **accessways** including:
  - The primary entrance / exit from the N67 located to the west of the site;
  - The secondary entrance – linking with the tunnel access under the N67;
  - The N67 public road which bisects the site – with a private access tunnel providing operational access between the station and the ASA;
- extensive **service support areas and ancillary** operations associated with site operations;
- **underground services** including significant underground electrical cables (high, medium and low voltage); cooling water and site drainage infrastructure.

2.5 Environmental Characteristics

2.5.1 Socio Economics

Moneypoint is a significant economic driver in County Clare and the mid-west region. The site acts as an employment hub while also providing a reliable source of electricity, which directly supports economic activity across all sectors – and throughout Ireland. Moneypoint is a significant contributor to the rates base of County Clare and contributes revenues to agencies such as the Shannon Foynes Port Authority and the Commissioners of Irish Lights.

2.5.2 Biodiversity

Two European Sites designated for nature conservation lie within the foreshore of the Moneypoint site - the Lower River Shannon Special Area of Conservation (SAC) - site code 0002165, and River Shannon and River Fergus Estuaries Special Protection Area (SPA) - site code 004077. There are other sites designated for nature conservation in the vicinity including: Ballylongford Bay proposed Natural Heritage Area (pNHA), Tarbert Bay pNHA, Clonderalaw Bay pNHA, St Senan's Lough pNHA, Scattery island pNHA, Beal Point pNHA, and Poulnasherry Bay pNHA. With the exception of St Senan's Lough pNHA, all of the above sites are located within the Lower River Shannon SAC boundary, the designation of which supersedes the pNHA categorisation.

The site is of varied ecological significance. Spoil and bare ground is extensive within the generating station site, with varying levels of recolonisation by low ruderal vegetation. There is no vegetation over most of the coal storage area, with a sparse flora present in less disturbed areas to the south and east.

Operational parts of the ASA are devoid of vegetation, while completed and capped areas comprise seeded open grassland habitat. Other amenity grassland areas are found in proximity to the southern shoreline and adjacent to the main access road and car parks. The Shannon Estuary shoreline along the southern boundary of the site comprises steep rock armour and consequently a relatively narrow intertidal zone comprising mostly fucoid seaweeds. The estuary and shoreline habitat forms part of the aforementioned European Sites. There are small areas of mature woodland (at least some of which have been present since before the 1840s) and dense scrub, to the north of the station. A derelict house and associated out-houses east of the 400 kV lines is now overgrown and impassable; is known to have been used by roosting bats (including pipistrelles). Overall, the mature woodland habitats at the site are considered to be of high ecological value. Trees within and bounding the site are scheduled for protection under the Clare County Development Plan.

There is on-going ecological monitoring on the site – both in relation to established operations and to inform new development proposals.

2.5.3 Land and Water

The land surface of the site was altered through extensive cut and fill operations where soil and bedrock was excavated to make way for the generating station, Flue Gas Desulphurisation (FGD) disposal / storage area and coal storage area, and used to reclaim land from the estuary. Geological Survey of Ireland (GSI) data indicates that the natural soil at the Moneypoint site comprises marine clays, made ground, and glacial tills - although this is indicated to be thin or absent in places with rock at or near the surface. Groundwater vulnerability mapping suggests soil thickness ranging between less than 1 to 5m. Site investigation data indicates that soil is predominately cohesive glacial till of greater than 3m thickness, with less frequent granular horizons and occasional peat deposits (ESB, 2017). Site investigations found bedrock beneath the site comprise a highly fractured sandstone or siltstone and very thinly laminated sandstone (ESB, 2017).

Groundwater flow within the bedrock is likely primarily through joints, fissures, fractures and other discontinuities, particularly in siltstones and mudstones. The sandstones that form part of the Central Clare Group are likely to be of a competent nature and likely have a greater yield of groundwater, whereas the mudstones and siltstones are likely to be incompetent. The vulnerability of this resource ranges from High to Extreme. The bedrock groundwater is of limited resource potential and would be highly vulnerable to contamination. The GSI groundwater resource mapping indicates that the bedrock groundwater resource is classified as 'local important productive' in local zones (Ll). This is a low groundwater classification and would indicate that sufficient groundwater to support domestic or large abstractions may be available only in specific locations or areas.

The adjacent surface water body, the Lower Shannon Estuary is considered to be the sensitive receptor in the event of an unconfined or uncontrolled loss of a contaminant or hazardous material at Moneypoint. The site is adjacent to the Lower River Shannon SAC (Code 002165) and River Shannon and Fergus Estuary SPA (Code 004077) at this location.

The adjacent surface water body, the Lower Shannon Estuary is considered to be the sensitive receptor in the event of an unconfined or uncontrolled loss of a contaminant or hazardous material at Moneypoint. The site is adjacent to the Lower River Shannon SAC (Code 002165) and River Shannon and Fergus Estuary SPA (Code 004077) at this location.

At this location, the River Shannon is tidal due to its proximity to the Atlantic Ocean. There has been no assessment of any risks associated with coastal erosion at this location. This is considered a low risk given the location of the site within the Shannon Estuary. The Shannon Estuary is located within the Shannon River Basin District. The Shannon Catchment Flood Risk Assessment Management Studies (CFRAMS) was completed in 2016. Allowing for changes due to climate change, the predicted tidal flood level of 4.08 m Ordnance Datum (OD) would not impact on the Moneypoint Site. Further assessment carried out as part of the Irish Coastal Protection Strategy Study (ICPSS), provides predictive flood extent maps for this area. A predicted water level of 4.55 m OD (in a mid-range scenario), means coastal flooding should not impact on the Moneypoint site. Based on the review of the Preliminary Flood Risk Assessment (PFRA) mapping no flooding occurs on or in the vicinity of the Moneypoint site. Furthermore, because the Moneypoint site is not located in a floodplain, future development at Moneypoint has, therefore, no potential to cause a loss of, or impact on, floodplain.

2.5.4 Air & Climate

As required by its IE Licence, Moneypoint Generating Station reports annually to the EPA on compliance with emission limit values in the Licence, as part of its Annual Environmental Report (AER). Emissions are also reported via the national pollutant release and transfer register (PRTR), established by the EPA. Monitoring of the site is on-going, in-line with the conditions of the licence.

The 2020 Pollutant Release and Transfer Register (PRTR) reports that 862,922 tonnes of CO2 and 421 tonnes of NO2 was released from the site in 2020.

2.5.5 Noise

As required by its IE Licence, Moneypoint Generating Station reports annually to the EPA on compliance with noise limit values in the Licence, as part of its AER. Three designated Noise Sensitive Locations (NSLs) have been identified for monitoring purposes. The results from the monitoring indicate that noise levels from the site are compliant with the IE licence limits.

16 complaints were received in 2021 in relation to noise from the site. Elevated noise levels arising from the atmospheric drains tanks (ADT), during synchronisation/desynchronisation, was identified as the source of the noise. Vent silencers were installed to address this.

2.5.6 Traffic and Transport

Access to the Moneypoint site is via the N67 Killimer - Kilrush and the N68 Kilrush – Ennis National Secondary Routes. Immediate access to the site is from the N67, which is an important route that links Co. Clare and Co. Kerry via the Killimer - Tarbert car ferry service. The principal sources of road traffic arising from the presence of the station relate to the movement of staff, materials (by-products and consumables); and visitors to site. Fuel (coal and oil) are delivered to the site by ship and therefore do not rely on transport by road.

Beyond the National Secondary routes the locality has a network of roads that serves a rural community that is reliant mainly on agriculture. The roads are thus used by this community for domestic and agricultural purposes. It is understood that due to the scheduling of the Killimer - Tarbert car ferry service, traffic on the N67 close to the power station tends to peak coinciding with ferry times.

2.5.7 Cultural Heritage

The Moneypoint site comprises highly disturbed land, and the likelihood of discovering previously unknown archaeological features is low. Within the wider area there are a number of sites within the overall study area outside the ESB landholding – typically ringfort sites.

There are no protected structures within the meaning of the Planning and Development Act, 2000 (as amended) in the Moneypoint landholding. To the east of the site there is one site, St. Senan's Roman Catholic Church - listed as being of regional importance on the National Inventory of Architectural Heritage (NIAH). Register (Reg. No. 20406719).

2.5.8 Landscape

The overall landscape setting of the site is coastal and rural. The Moneypoint site itself is an established industrial site characterised by large-scale generation infrastructure set within a broad and open brownfield site, with associated shoreside activity.

The Landscape Character Assessment (LCA) for County Clare (2004), identifies the landscape setting is described as Landscape Character Area '18 – Shannon Estuary Farmland'. The station, and associated overheadline structures (pylons) are described as a "singularly large-scale detractor on the Shannon" with this part of the estuary coastline described as a degraded and working landscape.

3 Green Atlantic @ Moneypoint Concept

3 Green Atlantic @ Moneypoint Concept

Moneypoint is now entering a period of transformational change, as ESB accelerates its drive to achieve net zero emissions by 2040.

The 'Green Atlantic @ Moneypoint' programme will be a multi-billion Euro programme of projects that will see the redevelopment of this brownfield site to serve offshore renewable energy (ORE) developments in the Atlantic and beyond, and support the on-going activities of the ORE sector, while meeting the need for energy storage and dispatchable generation.

This Green Atlantic @ Moneypoint Concept Document sets out a vision for an ambitious future – showing how this site can be transformed from a fossil-fuel reliant generation site, to a centre for clean, green energy production. It sets out an overall plan vision for Moneypoint - identifying particular areas of the site and generalised land use activities suited to those locations, enabling individual projects to be seen in the context of this 'bigger picture' and wider land-use considerations for the Shannon Estuary. The document is supported by public policy at international, national, regional and local level and is highly complementary to plans for County Clare and also the Shannon Estuary.

This document is acknowledged to be a non-statutory statement of ESB's aspirations for the Moneypoint lands in the medium and long term. It focuses on the management, enhancement and expansion of operations and activities associated with energy generation and on the future possibility of supporting the offshore renewable energy sector. It will be used to guide future specific proposals and to inform stakeholders of ESB's approach in response to the strategic and national energy policy. It is not a prescriptive land use plan but rather sets out a future development path for Moneypoint. Any projects arising from this strategy will need to be examined against a number of criteria and will also be subject to the normal statutory planning and environmental assessment and consents. As such it is intended that this document will engage stakeholders on ESB's plans for Moneypoint; and support individual development proposals and planning applications on the lands.

In preparing this document, ESB was cognisant of good practice and the requirements of the Strategic Environmental Assessment (SEA) Directive in respect of the assessment of plans and programmes. Under the SEA Regulations, the document– being neither a plan or programme subject to preparation and/or adoption by an authority at national, regional or local level or which are prepared by an authority for adoption, through a legislative procedure by Parliament or Government; and a plan or programme required by legislative, regulatory or administrative provisions; is not defined as a plan or programme under the SEA Regulations. Given of the importance of ensuring that environmental considerations and sustainable development decisions have informed the strategic planning process, a Strategic Environmental Assessment (SEA) Environmental Report was prepared. This Report was prepared by independent environmental consultants, and informed the evolution of the strategy as published. The SEA process applied strongly aligned with the relevant guidance.

In-line with the Habitats Directive, the potential direct and indirect impacts on European sites and their respective Qualifying Interests / Special Conservation Interests arising from implementation of this document have been considered. Applying the precautionary principle, potential direct and indirect impacts have been identified; and a Natura Impact Statement (NIS) has been prepared to accompany and inform the document. The purpose of the NIS is to:

- Provide a strategic approach to mitigation which may result from the implementation of the Concept; and
- Provide a framework within which future development projects arising from the Concept can be advanced, particularly as they are progressed to the development stage in accordance with the requirements of the Habitats Directive

The Appropriate Assessment (AA) process applied again strongly aligned with the relevant guidance.

The recommendations of both the SEA and AA assessments have been incorporated into this Concept Document. Additionally, ESB are committed to implementing the mitigation measures proposed in the SEA Environmental Report and the Natura Impact Statement. See the appendices for the full suite of mitigation measures. The SEA and the NIS are included as separate documents to this report. These documents are available on the website.

3.1 Objectives

ESB's strategy **Driven to Make a Difference: Net Zero by 2040** sets out a pathway to achieve net zero in a way that supports the Company's continued growth and financial capacity to invest in a net zero future. The strategy commits us to:

- delivering a five-fold increase in renewable generation capacity (to 5GW), reducing carbon intensity by two-thirds by 2030;
- developing resilient infrastructure – including investing in battery and hydrogen technology and supporting the expansion of the renewable energy industry by facilitating connections to electricity transmission and distribution networks; and
- empowering customers to live more sustainably with key investments in electrical vehicle (EV) charging technology, energy retrofits and smart meters.

ESB continues to develop strategies and policies supporting the Company's activities in key areas including sustainability and biodiversity. This strategy will be implemented in-line with applicable strategies. As of mid-2025, it is anticipated that commitments relevant to biodiversity net gain and ecological betterment – such as enhancement of the site for pollinators, will be relevant to the future development of the site.

In-line with the Company strategy, ESB's strategic objectives for Moneypoint are:

Objective 1
To ensure Moneypoint continues to support economic development and activity in the Shannon Estuary, County Clare, the broader Region and State by providing a reliable source of electricity while ensuring the site is developed and operated to the highest environmental standards, in-line with ESB's Environmental Management Systems,

Objective 2
To transition the site to a new, lower carbon operating profile, moving progressively towards zero carbon generation with Moneypoint providing dispatchable electricity and energy storage to support an increasingly renewable energy sector.

Objective 3
To develop Moneypoint as a base for the offshore renewable energy sector, acting as a construction and deployment hub, and a manufacturing location for zero carbon fuels.

Objective 4
To develop and operate Moneypoint so it supports Ireland's ambitions to become a net exporter of zero carbon energy.

3.2 Scope & Duration

The Green Atlantic @ Moneypoint Concept relates to ESB owned lands at Moneypoint.

This is a guidance document prepared by ESB in support of the Company's land management and development proposals. It sets out ESB's objectives and plans for Moneypoint as of mid 2025. It will be implemented within a phased programme for redevelopment whereby site re-development will take place while traditional generation activity is on-going.

It is envisaged that complete delivery of the strategy may be (in whole or part) over a 15 to 20 year period. Phased delivery will be by means of a series of individual planning and environmental consents.

Where the plans and intentions for the site change, ESB may update its site strategy as required.

3.3 Elements of the Green Atlantic @ Moneypoint Concept

At full build out, this strategy envisages industrial scale electricity generation fuelled by lower and zero carbon fuels replacing the existing generation station; flanked by open air yards that accommodate the construction, assembly and deployment of large scale wind turbines and renewable energy technologies; with direct access to short-term storage and turbine deployment areas in the adjoining Shannon Estuary; and energy storage systems clustered within a remediated industrial site. The site will utilise renewable energy brought onshore linking with the national grid and on-site industrial processes.

Given that the strategy envisages substantial re-development of the site, while maintaining transitional generation and transmission activity, the strategy will be developed through individual projects delivered over a number of phases. Likely landmark phases of development are::

- **From 2024 to early 2030's** – initiation of land remediation and phased development of energy storage and additional dispatchable low carbon generation infrastructure at Moneypoint;
- **2025** – cessation of coal fuelled generation with the conversion of Moneypoint Generating Station to a lower carbon generating facility;
- **From late 2020's** – continued site remediation and initiation of port upgrade works; establishment of Moneypoint Hub as a construction and operations base for the ORE sector
- **Post 2035** – ESB ORE projects on the west coast become operational; Moneypoint transitions over time to alternative low and zero carbon fuels, such as green hydrogen and ammonia.

3.3.1 Land Remediation

The remediation of brownfield lands - including the coalfields, the FGD landfill and the ASA (where feasible), will be take place, preparing the site for future development. Existing large-scale coal handling infrastructure will also be removed from the site, on a phased basis.

3.3.2 Long Duration Energy Storage (LDES)

The development of adequate long- and short-term energy storage is essential to supporting an energy system that is increasingly reliant on renewable energy generators, which are, by their very nature, intermittent in nature. It is anticipated that energy storage will be accommodated within the Moneypoint site, subject to the availability of a suitable grid connection. Storage will be an ancillary land-use, relative to the primary functions of the site – namely energy generation and infrastructure to support ORE developments.

3.3.3 Future Thermal Generation and Alternative Fuels

Moneypoint will continue to act as a dispatchable thermal generation site ensuring energy security for the State in the context of an increasingly renewable energy system. It is envisaged that this will necessitate the development of new thermal generation capacity and plant. It is currently envisaged that any such facility will be capable of converting to low and zero carbon fuels as technology develops.

ESB is investigating the possibility of producing zero carbon fuels from excess offshore wind electricity at Moneypoint. These fuels could be stored on site for use in dispatchable generation or transported from the site for the decarbonisation of a wide range of industries either domestically or abroad.

3.3.4 The Moneypoint Hub Project

In line with the plan-led approach for the maritime area, it is envisaged that the south and west coasts will be the focus for the deployment of at-scale offshore renewable energy projects from the early to mid-2030s. ESB proposes to develop a large-scale hub for the construction, assembly and deployment of offshore wind turbines and renewable energy technologies – the Moneypoint Hub project.

It is envisaged that Moneypoint will be developed to serve both the fixed and floating turbine industries and other maritime renewable energy technologies. It will act as a dedicated land and marine facility for staging, fabrication and deployment of offshore wind foundations. It will comprise three key activity zones:

- **Turbine Laydown**: A dedicated area primarily used for the storage of Wind Turbine Generator (WTG) elements (blades, nacelle, tower, mooring lines / anchors etc).
- **Construction Yard**: An area of hardstanding used for the landside fabrication, assembly and storage of floating platforms and fixed foundation elements.
- **Quayside Infrastructure**: dedicated infrastructure will be provided to ensure access to deepwater to serve the fixed and floating offshore wind industry and allow safe passage for all vessels and units likely to operate at the facility. For floating technologies, the site will provide a staging point for the mating of wind turbines onto floating foundations and facilitating the storage of these elements, prior to their tow-out to offshore wind farm sites.

It is envisaged that, at the quayside, new quay infrastructure will be required for the delivery of elements, deployment of wind turbines and substructures; and, for floating units, the mating of turbines and substructures at the quayside. It is anticipated that limited wet storage of units would be facilitated close to the port, but that the Moneypoint site will not accommodate a dedicated wet storage facility.

The site will also facilitate operations and maintenance (O&M) capacity and host depots for the servicing and maintenance of offshore windfarms. The advantage of having readily accessible O&M facilities, will make a contribution to reduce energy costs, to the benefit of both operators and the consumer.

As envisaged in the National Hydrogen Strategy, such a facility also has the potential to facilitate production of green fuels to decarbonise other industrial sectors.

As a strategic base for the offshore industry, Moneypoint will grow as an important regional facility in relatively close proximity to offshore wind development sites. These activities will ensure the full potential for the ORE sector is realised to the benefit of County Clare, the Shannon Estuary, and the State. The development and operation of Moneypoint will support the wider plans of Shannon Foynes port, and working with local stakeholders, help make the Shannon Estuary a focal point for the offshore wind industry in Europe.

It is acknowledged that Moneypoint is set within the Shannon Estuary, which is home to a wide range of different habitat types and supports many natural species, many of which are protected under National and EU legislative framework including the 'Birds Directive' and the 'Habitats Directive'. In seeking to develop enhanced port facilities it is understood that there will be a need for consenting authorities to balance protection of these areas and the societal and environmental benefits of developing at-scale ORE in the maritime area. As such, design works are being completed on the understanding that the Habitats Directive does not preclude further development in estuarine or coastal zones within or around designated Natura 2000 sites – but that the consenting authority must carry out an 'Appropriate Assessment' to demonstrate that any project poses no significant adverse effect to the integrity of conservation features of these designated sites - or determine other provisions under the Directive apply.

3.3.5 Offshore Renewable Energy Projects

ESB proposes to develop offshore wind projects off the coasts of Counties Clare and Kerry subject to the identification of Designated Maritime Area Plans by central government and the award of Maritime Area Consents for offshore wind development within these areas. It is envisaged that the projects will utilise floating foundation turbines and will be in production post 2035. It is anticipated that the export cables connecting the offshore substation and the electricity grid, will come onshore and then be routed underground to a new onshore substation located at, or close to, the Moneypoint station site. Where feasible this will be a hybrid connection, thereby maximising efficient use of the grid. The onshore substation will in turn be connected to the EirGrid operated 400 kV transmission substation at Moneypoint or may utilise a private wire to supply a non-grid off-taker. The onshore substation may be located within the Moneypoint lands and will include a host of equipment including compensation equipment, transformers and switchgear.

3.4 Green Atlantic @ Moneypoint Concept Strategy

This strategy has been developed to identify the optimum sites for development – see Figure 5, to bring about the transformation and redevelopment of Moneypoint.

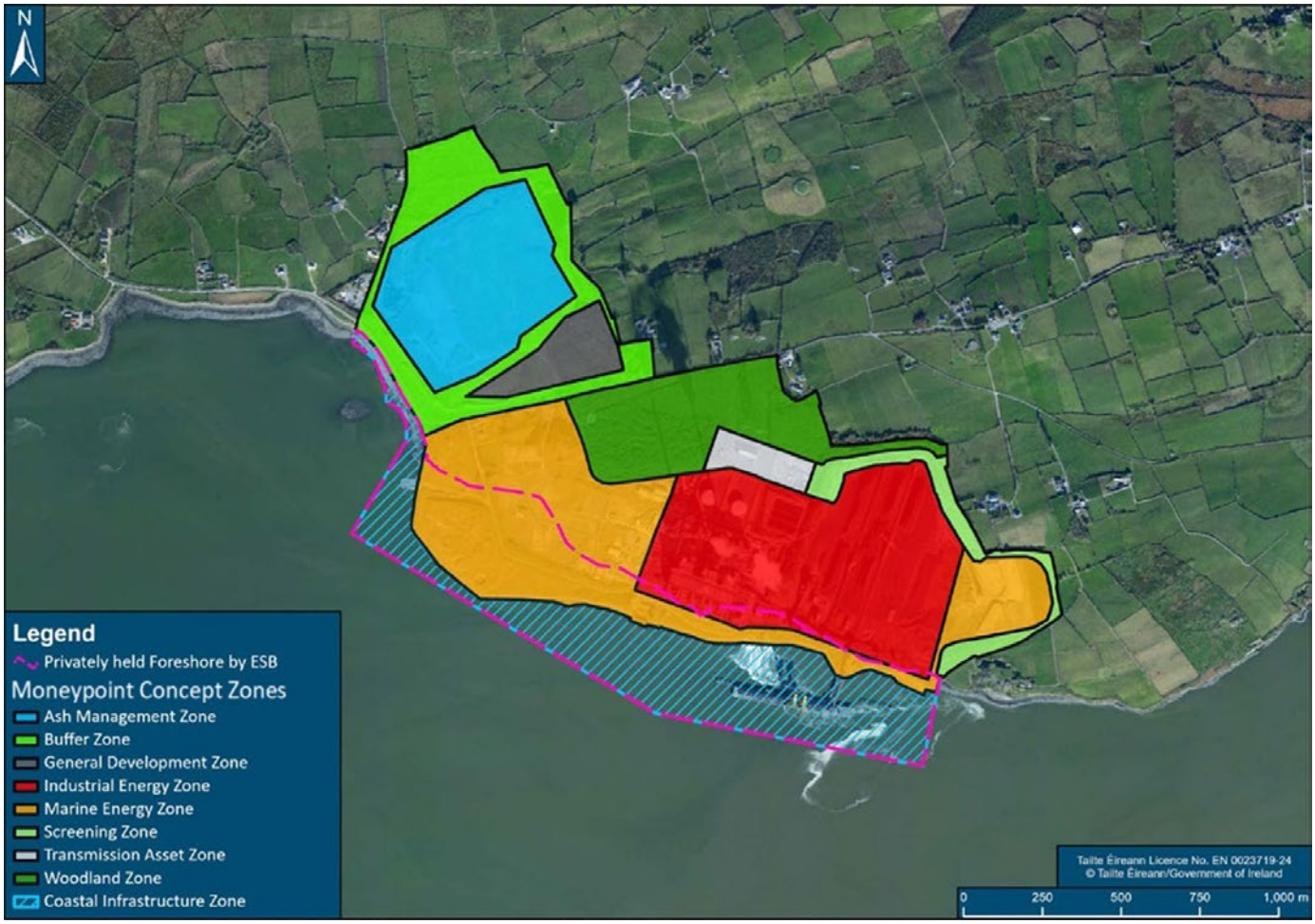
3.4.1 Overarching Principles

The following overarching principles (OPs) will apply to individual projects promoted in implementation of this strategy:

OP1	The Green Atlantic @ Moneypoint concept strategy will be implemented having due regard for the sensitivity of the local environment, including the adjoining coastline, which includes the Lower River Shannon SAC and River Shannon and River Fergus Estuaries SPA.
OP2	As required under prevailing legislation, development proposals will be required to comply with the requirements of the Environmental Impact Assessment and Habitats Directives.
OP3	Mitigation measures identified by project specific environmental assessment and approved as part of the statutory consenting process, will be implemented to mitigate against impacts arising on the local environment.
OP4	All development proposals on the Moneypoint site will need to be evaluated to consider combined risks and potential consequences to the environment, given its SEVESO status. Development proposals will be supported by all relevant environmental assessments necessary to determine the acceptability of residual impacts on environmental receptors.
OP5	ESB will continue to operate and manage the site in-line with all consents – including planning permissions, Environmental Licences, waste licences etc, and in-line with relevant Regulations e.g. COMAH
OP6	ESB will continue to operate within its Environmental Management System (EMS) which is externally accredited to the ISO 14001 Standard and provides a framework for ensuring that ESB complies with its legislative and regulatory obligations, while also providing assurance that it is managing its environmental risks in a proactive and responsible way. In-line with the EMS, construction based mitigation will be applied, as appropriate, to mitigate against impacts on the local environment. Construction Environmental Management Plans (CEMPs) will be prepared and implemented for any major construction/upgrade works. The CEMP will include, but not be limited to, the following information: • Description of the project; • Description of the construction works required (including duration and phasing, location, sensitive receptors etc); • Details of any environmental assessments carried out to inform the CEMP; • Roles and responsibilities (including training and competencies); • Details on environmental management, including details of any environmental management systems, identification of the relevant regulations and requirements, environmental awareness and commitments; • Identification of potential negative environmental effects and mitigation measures to reduce or avoid said impacts (including mitigation measures relating to population and human health, biodiversity, land and soils, water, air and climate, archaeological, architectural and cultural heritage, landscape and visual, material assets (including infrastructure, waste and resources); and • Procedures for audits, monitoring and inspections.

OP7	Operational Phase Maintenance Plans will be developed where relevant for any major developments arising from the implementation of the strategy.
OP8	The implementation of this strategy will aim to protect, restore and enhance biodiversity and ecological connectivity - including woodlands, trees, hedgerows, semi-natural grasslands, rivers, streams, natural springs, wetlands, geological and geo-morphological systems, other landscape features, natural lighting conditions, and associated wildlife where these form part of the ecological network and/or may be considered as ecological corridors or stepping-stones in the context of Article 10 of the Habitats Directive. The design of any developments should aim, where practicable, to incorporate Biodiversity Net Gain.
OP9	Appropriate invasive species surveys shall be carried out in advance of any construction/ reinstatement works and inform the implementation of Invasive Species Management Plans where required.
OP10	Where appropriate, development proposals will be subject of design level modelling to determine any potential hydrological change that may arise and impact on the hydrology of sites within the zone of influence of the site, including European Sites designated for their international nature conservation importance. Such models will inform mitigation strategies and ensure that site infrastructure is appropriately designed.
OP11	Where proposed works have the potential to impact on the quality of a water body and / or the integrity of a European Site, a Surface Water Management Plan (SWMP) and / or a Water Protection Plan will be prepared and implemented.
OP12	In carrying out all works – and notably in undertaking remediation works to brownfield lands, ESB will ensure that appropriate and adequate soil protection measures are undertaken where appropriate on any developments arising from the implementation of the strategy. Adequate and appropriate investigations shall be carried out into the nature and extent of any soil and groundwater contamination and the risks associated with site development work, particularly where brownfield development is proposed.
OP13	To develop and manage drainage systems on the site in-line with the principles of sustainable urban drainage. On-site systems will continue to be routinely inspected and maintained.
OP14	All waste arising during any development and continued operation of the site shall be managed and disposed of in accordance with relevant legislation. Waste management plans shall be implemented to minimise waste and ensure correct handling and disposal of construction wastes streams.
OP15	Implement recommendations of the Strategic Flood Risk Assessment of the Green Atlantic @ Moneypoint Concept Document including ensuring areas vulnerable to coastal inundation are reserved for 'water compatible' uses; ensuring that the finished floor level of any new development is set above the 1 in 200-year coastal flood level, including allowance for climate change and freeboard (that being 4.39mOD) and that additional analysis – possibly including a wave overtopping analysis, is carried out to identify other mitigation measures that may be required.
OP16	As feasible, ESB will work with utility and service providers such as Eirgrid to accommodate the provision of strategic infrastructure at Moneypoint to serve the needs of the Shannon Estuary and wider region and to realise the potential of the offshore wind and renewable energy sector.

Figure 5 – The Green Atlantic @ Moneypoint Concept Strategy



3.5 Development and Activity Zones

Zone & Use	Principles Guiding Development	
The Marine Energy Zone To be developed to facilitate onshore development associated with marine-related industries, the Moneypoint Hub Project and ORE developments in the wider maritime area	**MEZ1**	ESB will develop these lands for activities relating to marine energy and associated industrial activity. While the primary focus will be on development associated with the construction and operation of the Moneypoint Hub – a strategic base for ORE; such developments may include large-scale energy users that require a location adjacent to estuarine/deep water; have a dependency on marine transport, transhipment, bulk cargo; or where the industrial processes benefit from a location adjacent to the marine area and/or proximity to a major energy generation hub. Development will be phased based on the availability of land, and – where feasible, as existing uses e.g. FGD landfill area, are remediated. Typical uses will include: • facilities utilising renewable energy in the production of alternative zero-carbon fuels such as hydrogen, ammonia, etc. • construction yard – area for the fabrication and assembly of renewable energy technology infrastructure including fixed and floating foundations, etc. • turbine laydown - storage of turbine elements (blades, nacelle, tower, mooring lines / anchors etc); • turbine assembly and integration – quayside area for the assembly of turbines and their integration on to floating platforms; • ancillary laydown areas and compounds. It is noted that proposals for that facility will incorporate sufficient flexibility in design to future proof the site and ensure it remains a viable base for long-term operations, allowing for increased scale of deployed units etc. The ramp area near the jetty has been identified as vulnerable to coastal inundation. Land uses in this area will be demonstrably 'water compatible' in-line with the relevant Guidelines. Ancillary development may include: • supporting infrastructure – including control buildings, materials handling infrastructure such as concrete batching plant etc • operation and maintenance (O & M) functions for the ORE industry • grid support services e.g. LDES units • substation compound to facilitate offshore grid connection • generation facilities – such as those used for emergency generation • areas of external electrical plant (small scale), • storage facilities (open air or enclosed), • lay down areas, car parking etc, and • ancillary industrial activities.

Zone & Use	Principles Guiding Development	
The Marine Energy Zone To be developed to facilitate onshore development associated with marine-related industries, the Moneypoint Hub Project and ORE developments in the wider maritime area	**MEZ2**	All development proposals will have regard to the prevailing land use zoning of the site, and the visual and ecological sensitivity of the adjoining coastline, noting the proximity to a European site. As such, any development in this area will be required to demonstrate that it does not negatively impact on the conservation objectives of the adjoining Lower River Shannon SAC (site code 0002165) and River Shannon and River Fergus Estuaries SPA.
	MEZ3	ESB, and third parties including EirGrid, may develop infrastructure e.g. underground export cables, onshore substation, serving ORE developments such as those ESB propose to develop, in this zone.
	MEZ4	ESB will remediate brownfield lands, including the FGD disposal / storage area, in line with environmental licensing requirements and planning consents.
	MEZ5	ESB will manage the existing FGD Area A in accordance with the appropriate licences and consents. ESB will investigate the feasibility of developing this area, in scenarios where the FGD is removed, and where it is not.
	MEZ6	In-line with the promotion of the circular economy, ESB will seek to realise the commercial value of FGD located in l Area A, to the east of the station. If feasible this will necessitate the excavation of the material and its export from the site for use or disposal, off-site, subject to consent. Such works would be carried out in-line with Waste Management Regulations.
	MEZ7	Where the existing FGD area exceeds capacity, alternative disposal capacity for FGD waste will be sought in favour of developing Landfill Area B to the west of the existing station.
	MEZ8	Electrical infrastructure will not be located in proximity of the existing wind turbines and the met mast. All other development at these locations will be assessed having regard to the risk of conflicts arising.
	MEZ9	ESB will consider the removal or relocation of wind turbines and / or the met mast as necessary, where this would facilitate the broader scale development of the Moneypoint site for purposes associated with marine energy.

Zone & Use	Principles Guiding Development	
Coastal Infrastructure Zone To be managed and developed to maintain operations at the existing generating station and facilitate offshore development associated with the Moneypoint Hub Project	**CIZ1**	ESB will seek to develop and enhance coastal infrastructure at the Moneypoint site to facilitate its development as a hub for the ORE industry. It is expected that new infrastructure will be required for the delivery of turbine elements, deployment of substructures, assembly of turbines and limited storage, at the quayside. This may require the removal of the existing jetty and the development of new quayside infrastructure including infilling / land reclamation; and / or the repurposing of the existing jetty and barge landing facility for alternative uses.
	CIZ2	All development proposals will be developed having regard to the prevailing land use zoning of the wider site, the over-arching requirement to develop facilities to support the development of at-scale ORE development and the ecological sensitivity of the adjoining Shannon Estuary. Proposals will incorporate sufficient flexibility in design to future proof the site and ensure it remains a viable base for long-term operations. Any development in this area will be required to demonstrate that it does not negatively impact on the conservation objectives of the adjoining Lower River Shannon SAC (site code 0002165) and River Shannon and River Fergus Estuaries SPA, or that circumstances prevail whereupon consent can be granted having regard to broader considerations.
	CIZ3	ESB will work with other developers and operators in the Shannon Estuary, and wider coastal area, to develop additional support infrastructure including wet storage facilities, to meet the needs of the emerging ORE industry.
	CIZ4	All works will be planned and carried out having regard to the requirements to avoid impacts on the 220kV and 400kV underground cables (UGCs) – with planned re-routing of such services where required.
	CIZ5	Electrical infrastructure will not be located in proximity of the existing wind turbine. All other development at these locations will be assessed having regard to the risk of impacts arising. ESB will consider the removal or relocation of the wind turbine where such a proposal would facilitate the broader scale development of the site for purposes associated with marine energy.
	CIZ6	All developments within the maritime area will be assessed to identify - and where possible, mitigate against, impacts on marine archaeology.
	CIZ7	ESB may develop infrastructure e.g. underground export cable, substation, serving the ORE developments such , in this zone.
	CIZ8	Having regard to broader proposals for the development of additional undersea cables, international interconnectors and two-way gas pipelines within the Shannon Estuary, it is acknowledged that this zone may be developed to accommodate such strategic infrastructure.

Zone & Use	Principles Guiding Development	
Industrial Energy Zone To be developed to facilitate continued large scale electricity generation	**IEZ1**	ESB will continue to operate the existing Moneypoint generating station in-line with all consents and licences, supporting the energy security of the Region and the State.
	IEZ2	ESB will develop these lands for activities relating to energy generation and associated industrial activity. Given the strategic importance of Moneypoint as a generation asset, the development of this zone will be phased and Moneypoint 'repowered' with the introduction of energy storage, development of new generation capacity and the introduction of new thermal technologies, to ensure the site continues to support energy security. Ancillary developments in the area may include: • supporting infrastructure – including control buildings, materials handling infrastructure such as concrete batching plant etc • energy and fuel storage, • grid support services, • substation compound and areas of external electrical plant • small scale, temporary generation facilities – such as those used for emergency generation • storage facilities (open air or enclosed), • lay down areas, car parking etc. and • ancillary industrial activities. The ramp area near the jetty has been identified as vulnerable to coastal inundation. Land uses in this area will be demonstrably 'water compatible' in-line with the relevant Guidelines.
	IEZ3	ESB will manage and develop this zone to accommodate large-scale electricity generation and all associated above and below ground infrastructure. It is envisaged that, over time, these operations will transition the site to a low- and zero carbon operating profile, in-line with the strategic objectives of ESB.
	IEZ4	ESB will examine the feasibility of repurposing all, or part of, the existing generating station, where such proposals align with ESB's corporate commitments to decarbonise electricity generation activities, in support of national and international targets.
	IEZ5	ESB will seek the wholesale replacement of structures on this site to facilitate the introduction of increasingly lower carbon technology, transitioning over time to alternative low and zero carbon fuels, such as green hydrogen and ammonia, and ensuring Moneypoint continues to operate as a strategic asset in Ireland's energy system.
	IEZ6	All development proposals will be developed having regard to the prevailing land use zoning of the site, and the visual and ecological sensitivity of the adjoining coastline. Any development in this area will be required to demonstrate that it does not negatively impact on the conservation objectives of the adjoining Lower River Shannon SAC (site code 0002165) and River Shannon and River Fergus Estuaries SPA.
	IEZ7	All works will be planned and carried out having regard to the requirements to avoid impacts on the 220kV and 400kV UGCs and extensive water and drainage networks – with planned re-routing of such services where required.

Zone & Use	Principles Guiding Development	
Ash Management Zone To be managed appropriately with any new developments having regard to the sensitivities of the area	**AMZ1**	ESB will manage this zone in accordance with the appropriate licences and consents.
	AMZ2	ESB will continue to utilise the ASA for the storage of ash and/or FGD, seeking revised consents and licences, as required.
	AMZ3	Where material remains in situ, the existing ASA will be managed, capped and ultimately decommissioned in-line with the requirements of the Decommissioning Management Plan" and "Closure, Restoration, and Aftercare Management Plan (DMP) and CRAMP. ESB may develop this area to accommodate development ancillary to the primary activities of the main site, such as: • generation activity • supporting services and infrastructure – including control buildings, modules etc, • areas of external electrical plant, • storage facilities (open air or enclosed), • lay down areas, car parking etc.
	AMZ4	Any new development within this zone will be subject of robust environmental assessment to confirm that it does not impact on the on-going management of the capped ASA. Specifically a detailed Hydrogeological Risk Assessment will be prepared and a construction methodology submitted to the EPA for approval, in advance of works being permitted or commenced.
	AMZ5	ESB will seek to realise the re-use of the material deposited in the ASA for use in the circular economy and to remediate this part of the site rendering it suitable for new development. If feasible, this will necessitate the excavation of the material and its export from the site for use or disposal, off-site, subject to consent. Such works would be carried out in-line with Waste Management Regulations.
	AMZ6	Where new development is located on the ASA lands, the scale of new development will be appropriate to the location and setting. The transition between any new development and adjoining agricultural areas; will be managed and the sensitivity of views from the N67 and the coast considered in project design. Screen planting will be incorporated into development proposals, as appropriate.
	AMZ7	Where new development is located on the ASA lands, the scale of new development will be appropriate to the location and setting. The transition between any new development and adjoining agricultural areas will be managed and the sensitivity of views from the N67 and the coast considered in project design. Screen planting will be incorporated into development proposals, as appropriate.

Zone & Use	Principles Guiding Development	
General Development Zone To accommodate general development, of a relatively small scale	**GDZ1**	These lands lie outside the engineered ASA. ESB may develop these to accommodate relatively small scale development ancillary to the primary activities of the main site, such as: • supporting services and infrastructure – including control buildings, modules etc, • areas of external electrical plant, • storage facilities (open air or enclosed), • lay down areas, car parking etc.
	GDZ2	The scale of any new development will be appropriate to the location and setting. The transition between any new development and adjoining agricultural areas; will be managed and the sensitivity of views from the N67 considered in project design. Screen planting will be incorporated into development proposals, as appropriate.
	GDZ3	ESB may develop infrastructure e.g. underground cables, substations, serving the ORE developments in this zone.
Buffer Zone To accommodate small scale, low-level development to manage the transition between industrial and greenfield lands	**BZ1**	These lands will accommodate small scale, low level development to ensure they do not have a disproportionate visual impact on adjoining agricultural lands and the adjoining coastal zone.
	BZ2	New development within the buffer zone around the ASA will be sited having regard to the ecological value of the dense oak-dominated immature woodland located to the north of the ASA. The coastal side of the buffer area (and adjacent section of the N67) has been identified as being potentially vulnerable to coastal inundation. Land uses in this area will be demonstrably ;less vulnerable' or 'water compatible' in-line with the relevant Guidelines.
	BZ3	The protected earthwork to the north of the ASA will be protected in situ. Development will generally not be located within 30m of that feature. A suitably qualified archaeologist will be engaged to assess the impact of any works in this area on that monument. It is understood that it may be permissible to install underground services e.g. cables, in this area where it can be demonstrated that there works will have no direct impact on the monument.
	BZ4	ESB may develop infrastructure e.g. underground export cable, substation, serving ORE developments such as ESB intends to develop, in this zone.

Zone & Use	Principles Guiding Development	
Transmission Asset Zone To be maintained and developed to protect and enhance electricity transmission assets	**TAZ1**	ESB recognises the importance of Moneypoint as a strategic node in the transmission network. These lands will be maintained to enhance transmission infrastructure.
	TAZ2	ESB may develop transmission infrastructure associated with generation assets, in this zone.
Screening Zone To be maintained and developed to protect underground services and provide visual screening	**SZ1**	This site accommodates existing and proposed strategic cables. The route of these cables will be maintained, as required.
	SZ2	Existing berms provide screening between the coal storage area and adjoining agricultural lands – noting the significant change in levels due to the excavations undertaken to create the coal storage area. These will be retained and incorporated into future layouts to manage interactions between the site and adjoining landusers.
The Woodland Zone To protect existing woodland and provide a visual buffer between the site and the N67	**WZ1**	The protected mature woodland will be maintained free from development to ensure it is retained as a visual and ecological asset on the site.
	WZ2	The remaining lands immediately south of the N67 may accommodate small scale development, where they demonstrably do not impact on the ecological integrity of the woodland or the visual amenity of the N67.

3.6 Next Steps

3.6.1 Stakeholder Engagement and Consultation

This strategy will be the subject of discussion with external stakeholders including Planning Authorities to inform them of the types of development currently envisaged on these lands.

It will inform future submissions to land use strategies – specifically the Clare County Development Plan (CDP). It is also intended as a basis for consultation with other consenting authorities, including the Environmental Protection Agency (EPA). It may also be discussed with key stakeholders including EirGrid, National Parks and Wildlife Service (NPWS), HSA, etc.

3.6.2 Planning Consents

Planning consents will be required for all works that constitute development and are not exempted development.

In accordance with the requirements under the Planning Acts, applications will be to the relevant planning Authority – Clare County Council or An Coimisiún Pleanála.

Broadly speaking, each individual application will set out:

- Proposal details – standard details into the nature of the proposal including notes in relation to flexibility that may be needed to facilitate various types of technology;
- Proposal justification – a statement of why the proposed development is needed; why it is needed at the proposed location and - where relevant, an explanation of technology choices;
- A statement in relation to site constraints – noting that, in addition to environmental constraints, many of the lands at Moneypoint are affected by the presence or proximity of strategic services and assets including transmission infrastructure;
- Environmental assessment to the appropriate level of detail, including (at a minimum) Environmental Impact Assessment (EIA) and Appropriate Assessment (AA) Screening statements, having regard - in particular, to the brownfield nature of sites and associated issues such as the possible presence of historical contaminants; and
- The nature of each development proposal will inform the scope of such applications – including the requirement for detailed assessments.

3.6.3 IE Licence Consents

Moneypoint is subject of an IE Licence issued by the EPA. As required, amendments or reviews of that licence will be sought.

3.6.4 Maritime Consents

The Shannon Estuary is a Maritime Area and development in this area will be permitted under the relevant legislation.

4 Appendix

4 Appendix - Mitigation Measures
Strategic Environmental Assessment (SEA) Environmental Report (ER)

Mitigation

Mitigation measures are measures envisaged and designed to prevent, reduce and as fully as possible offset any significant adverse effects on the environment during both the construction and operational phases of the implementation of the draft Green Atlantic @ Moneypoint Concept (GA Concept). All mitigation measures have been developed and agreed with ESB as part of the SEA iterative process.

It is recommended that all environmental requirements and guidelines outlined in this SEA ER are adhered to. In addition, future legislation, policies, environmental requirements and guidelines should also be fully integrated into the draft GA Concept and SEA ER.

In general terms, all proposals for development will be required to have due regard to environmental considerations outlined in this SEA ER and associated AA. In addition, many impacts will be more adequately identified and mitigated at project and EIA/AA level. Any new projects or plans arising from the implementation of the draft GA Concept shall be subject to appropriate environmental assessments, where required.

As discussed in Section 1.1 of the SEA ER, it should also be noted that Moneypoint Generating Station site is licenced by the EPA under an Industrial Emissions (IE) Licence (Ref. P0605-04). The IE Licence authorises the following activities:

- Activity 1.1 (IED) / 2.1 (EPA Act 1992, as amended): "Combustion of fuels in installations with a total thermal output of 50MW or more"; and
- Activity 5.4 (IED) / 11.5 (EPA Act 1992, as amended): "Landfills, within the meaning of Section 5 (amended by Regulation 11(1) of the Waste Management (Certification of Historic, Unlicenced Water Disposal and Recovery Activity) Regulations 2008 (SJ. No 524 of 2008) of the Act of 1996, receiving more than 10 tonnes of waste per day or with a total capacity exceeding 25,000 tonnes, other than landfills of inert waste".

The IE Licence contains conditions on how the activity must operate in order to protect the environment from pollution that might otherwise arise. Limits and controls are imposed on emissions to air, water, dust, and noise. The Licence also includes requirements relating to site operations, such as, the implementation of an EMS, energy efficiency, incident response and waste management. In line with the IE Licence, environmental monitoring of the site is on-going. Throughout its operation, Moneypoint Generating Station has been maintained and improved to meet relevant environmental standards, and the IE Licence reviewed as appropriate.

Moneypoint Generating Station is also an Upper Tier Control of Major Accident Hazard (COMAH) site and therefore falls under the requirements of the COMAH Regulations (2015).

Lastly, ESB has held a foreshore lease (Ref. No. FS006389 (MS51/11/126) for the area where a jetty is located, since 1985. Additional foreshore consent (Ref. No. FS006318) was granted to ESB in 2015 to facilitate the erection of wind turbines on the site. Since 2015, the entire foreshore area (Ref. No. CE57420F) is under ESB ownership.

The majority of principles included in the draft GA Concept are predicted to have a positive environmental effect, particularly on P&HH, AQ, C&N and MA. However, a number of principles are proposed that may have a negative environmental effect, particularly those relating to new development where BIO, L&S, WAT and L&V impacts may arise. The relevant mitigation measures outlined in

Table 9.1 below should be adhered to in full during the implementation of the draft GA Concept.

Further, as outlined in Section 4.1 and 5.3 of the SEA ER, a combined Screening for AA and NIS has been prepared for the draft GA Concept. The Mitigation Measures set out in the accompanying combined Screening for AA and NIS are included in Appendix A.4 of the SEA ER and should be read in conjunction with those set out in Table 9.2. The SEA ER, combined Screening for AA and NIS and SFRA mitigation measures will be appended to form part of the final GA Concept. The recommendations of the SEA ER and combined Screening for AA and NIS have been incorporated into the draft GA Concept.

Inherent Mitigation

Any developments arising from the implementation of the draft GA Concept must comply with ESB's IE Licence (Ref. P0605-04). This Licence ensures all operations at the Moneypoint Generating Station site comply with environmental law to ensure that these operations don't endanger human health or harm the environment.

Furthermore, any developments arising from the implementation of the draft GA Concept shall comply with relevant EU Environmental Directives and applicable National Legislation, Policies, Plans and Guidelines, including the following:

- EU Directives, including the Habitats Directive (92/43/EEC, as amended), the Birds Directive (2009/147/EC), the Environmental Liability Directive (2004/35/EC), the Environmental Impact Assessment Directive (2011/92/EU, as amended by 2014/52/EC), the Water Framework Directive (2000/60/EC) and the Strategic Environmental Assessment Directive (2001/42/EC);
- National legislation, including the Wildlife Acts 1976 and 2010 (as amended), the Planning and Development Act 2000 (as amended) and associated regulations, Environmental Impact Assessment Regulations, the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended), the Flora Protection Order 2015;
- National policy guidelines;
- Catchment and water resource management plans;
- Biodiversity plans and guidelines including Ireland's 4th National Biodiversity Action Plan 2023-2030, All-Island Pollinator Plan; Clare Biodiversity Action Plan 2017-2023; and

- Requirements and guidance in the EU Water Framework Directive 2000 (2000/60/EU), the European Union (Water Policy) Regulations 2003 (as amended), the European Communities Environmental Objectives (Surface Water) Regulations 2009 (SI No. 272 of 2009), the Groundwater Directive 2006/118/EC and the European Communities Environmental Objectives (groundwater) Regulations, 2010 (S.I. No. 9 of 2010) and other relevant EU Directives, including associated national legislation and policy guidance (and any updated/superseding documents).

Finally, and as previously discussed, a number of OPs have been included within the draft GA Concept. The OPs will apply to individual projects promoted by implementation of the draft GA Concept. The OPs have potential to mitigate significant environmental effects at individual project level. Refer to Table 9.1 for the full list of OPs.

Note:
The new Planning and Development Act (2024) was signed into law on the 17th of October 2024; however, the Act is currently being commenced on a phased basis to facilitate the transition from the arrangements under the current Act to those under the new Act. At the time of writing this report, certain provisions of the Act (2024) are yet to be commenced, including those relevant to SEA. It is envisaged that the commencement of the remainder of the Planning and Development Act 2024 will be carried out across 4 phases in 2025/2026. As the relevant provisions to SEA have not yet been commenced in the new Planning and Development Act 2024, this report references the Planning and Development Act 2000, as amended.

Table 9.1 Overarching Principles (OPs)

OP reference number:	Overarching Principles
OP1	The Green Atlantic @ Moneypoint Concept will be implemented having due regard for the sensitivity of the local environment, including the adjoining coastline, which includes the Lower River Shannon SAC and River Shannon and River Fergus Estuaries SPA.
OP2	As required under prevailing legislation, development proposals will be required to comply with the requirements of the Environmental Impact Assessment and Habitats Directives.
OP3	All development proposals on the Moneypoint site will need to be evaluated to consider combined risks and potential consequences to the environment, given its SEVESO status. Development proposals will be supported by all relevant environmental assessments necessary to determine the acceptability of residual impacts on environmental receptors.
OP4	Mitigation measures identified by project specific environmental assessment and approved as part of the statutory consenting process, will be implemented to mitigate against impacts arising on the local environment.
OP5	ESB will continue to operate and manage the site in-line with all consents – including planning permissions, environmental licences, waste licences etc., and in-line with relevant Regulations e.g. COMAH
OP6	ESB will continue to operate within its Environmental Management System (EMS) which is externally accredited to the ISO 14001 Standard and provides a framework for ensuring that ESB complies with its legislative and regulatory obligations, while also providing assurance that it is managing its environmental risks in a proactive and responsible way. In-line with the EMS, construction based mitigation will be applied, as appropriate, to mitigate against impacts on the local environment. Construction Environmental Management Plans (CEMPs) will be prepared and implemented for any major construction/ upgrade works. The CEMP will include, but not be limited to, the following information: • Description of the project; • Description of the construction works required (including duration and phasing, location, sensitive receptors etc.); • Details of any environmental assessments carried out to inform the CEMP; • Roles and responsibilities (including training and competencies); • Details on environmental management, including details of any environmental management systems, identification of the relevant regulations and requirements, environmental awareness and commitments; • Identification of potential negative environmental effects and mitigation measures to reduce or avoid said impacts (including mitigation measures relating to population and human health, biodiversity, land and soils, water, air and climate, archaeological, architectural and cultural heritage, landscape and visual, material assets (including infrastructure, waste and resources); and • Procedures for audits, monitoring and inspections.

Table 9.1 Overarching Principles (OPs) continued

OP reference number:	Overarching Principles
OP7	Operational Phase Maintenance Plans will be developed where relevant for any major developments arising from the implementation of the strategy.
OP8	The implementation of this strategy will aim to protect, restore and enhance biodiversity and ecological connectivity - including woodlands, trees, hedgerows, semi-natural grasslands, rivers, streams, natural springs, wetlands, geological and geo-morphological systems, other landscape features, natural lighting conditions, and associated wildlife where these form part of the ecological network and/or may be considered as ecological corridors or stepping-stones in the context of Article 10 of the Habitats Directive. The design of any developments should aim, where practicable, to incorporate Biodiversity Net Gain.
OP9	Appropriate invasive species surveys shall be carried out in advance of any construction/ reinstatement works and inform the implementation of Invasive Species Management Plans where required.
OP10	Where appropriate, development proposals will be subject of design level modelling to determine any potential hydrological change that may arise and impact on the hydrology of sites within the zone of influence of the site, including European Sites designated for their international nature conservation importance. Such models will inform mitigation strategies and ensure that site infrastructure is appropriately designed.
OP11	Where proposed works have the potential to impact on the quality of a water body and / or the integrity of a European Site, a Surface Water Management Plan (SWMP) and / or a Water Protection Plan will be prepared and implemented.
OP12	In carrying out all works – and notably in undertaking remediation works to brownfield lands, ESB will ensure that appropriate and adequate soil protection measures are undertaken where appropriate on any developments arising from the implementation of the strategy. Adequate and appropriate investigations shall be carried out into the nature and extent of any soil and groundwater contamination and the risks associated with site development work, particularly where brownfield development is proposed.
OP13	To develop and manage drainage systems on the site in-line with the principles of sustainable urban drainage. On-site systems will continue to be routinely inspected and maintained.
OP14	All waste arising during any development and continued operation of the site shall be managed and disposed of in accordance with relevant legislation. Waste management plans shall be implemented to minimise waste and ensure correct handling and disposal of construction wastes streams.
OP15	Implement recommendations of the Strategic Flood Risk Assessment of the Green Atlantic @ Moneypoint Concept including ensuring areas vulnerable to coastal inundation are reserved for 'water compatible' uses; ensuring that the finished floor level of any new development is set above the 1 in 200-year coastal flood level, including allowance for climate change and freeboard (that being 4.39mOD) and that additional analysis – possibly including a wave overtopping analysis, is carried out to identify other mitigation measures that may be required.
OP16	As feasible, ESB will work with utility and service providers such as Eirgrid to accommodate the provision of strategic infrastructure at Moneypoint to serve the needs of the Shannon Estuary and wider region and to realise the potential of the offshore wind and renewable energy sector.

Mitigation Measures

Table 9.2 outlines mitigation measures specific to the draft GA Concept.

Table 9.2 Mitigation Measures

Environmental aspect	Mitigation measure	Relevant to which principle
P&HH	No potential negative or uncertain impacts were identified for P&HH during the assessment of significant effects, other than potential temporary construction related impacts. Construction based mitigation has been detailed as follows. The IE Licence ensures all operations at the Moneypoint Generating Station site do not endanger human health or harm the environment. All works should be carried out in compliance with Construction Environmental Management Plans (CEMP). CEMPs shall be prepared for any major construction/upgrade works associated with the implementation of the draft GA Concept. The CEMP shall include, but not limited to, the following information: • Description of the project; • Description of the construction works required (including duration and phasing, location, sensitive receptors etc); • Details of any environmental assessments carried out to inform the CEMP; • Roles and responsibilities (including training and competencies); • Details on environmental management, including details of any environmental management systems, identification of the relevant regulations and requirements, environmental awareness and commitments; • Identification of potential negative environmental effects and mitigation measures to reduce or avoid said impacts (including mitigation measures relating to population and human health, biodiversity, land and soils, water, air and climate, archaeological, architectural and cultural heritage, landscape and visual, material assets (including infrastructure, waste and resources); and • Procedures for audits, monitoring and inspections. Operational Phase Maintenance Plans should be developed where relevant for any major developments arising from the implementation of the draft GA Concept. Any developments arising from the implementation of the draft GA Concept adjoining the coastline must take cognisance of the visual and ecological sensitivity of the adjoining coastline, which includes the Lower River Shannon SAC (site code 0002165) and River Shannon and River Fergus Estuaries SPA. Lastly, any developments arising from the implementation of the draft GA Concept shall be subject to the relevant environmental assessments, as required (i.e. Environmental Impact Assessment, Environmental Impact Assessment Screening, Appropriate Assessment, Habitats Regulations Assessment).	MEZ1, MEZ3, MEZ8, CIZ1, CIZ3, CIZ5, CIZ7, IEZ3, AMZ7, GDZ1, GDZ3, BZ4 and TAZ2.

Table 9.2 Mitigation Measures continued

Environmental aspect	Mitigation measure	Relevant to which principle
BIO	**Biodiversity and Ecological Networks** Any developments arising from the implementation of the draft GA Concept should aim to protect, restore and enhance biodiversity and ecological connectivity, including woodlands, trees, hedgerows, semi-natural grasslands, rivers, streams, natural springs, wetlands, geological and geo-morphological systems, other landscape features, natural lighting conditions, and associated wildlife where these form part of the ecological network and/or may be considered as ecological corridors or stepping-stones in the context of Article 10 of the Habitats Directive. The design of any developments arising from the implementation of the draft GA Concept should aim to incorporate Biodiversity Net Gain where practicable. Any developments arising from the implementation of the draft GA Concept adjoining the coastline must take cognisance of the visual and ecological sensitivity of the adjoining coastline, which includes the Lower River Shannon SAC (site code 0002165) and River Shannon and River Fergus Estuaries SPA.	MEZ1, MEZ3, MEZ7, MEZ8, MEZ9, CIZ1, CIZ3, CIZ4, CIZ5, CIZ7, CIZ8, IEZ2, IEZ3, IEZ5, IEZ7, AMZ6, AMZ7, GDZ1, GDZ2, GDZ3, BZ1, BZ3, BZ4, TAZ2, SZ1 and WZ2.
	Invasive Species Appropriate invasive species surveys shall be carried out in advance of any construction/reinstatement works. Invasive Species Management Plans shall be prepared and implemented where required, following the assessment of invasive species surveys.	
	Direct Land Take Where possible, the design of any developments arising from the implementation of the draft GA Concept will ensure that measures are explored to minimise unnecessary land-take, in line with the ecological mitigation hierarchy which prioritises avoidance, and seeks to reduce, mitigate, and then compensate and offset for adverse effects on biodiversity, in that order of preference. In particular, the WZ, GDZ, SZ and BZ which are predominantly greenfield and include woodland areas. If land-take cannot be avoided, an assessment of the type (and use) of habitat present is required to determine suitable mitigation measures.	
	Hydrological Change Where proposed work has the potential to result in hydrological change, and there is a European Site within the zone of influence e.g., the Shannon Estuary (designated SPA and SAC), then coastal process modelling will be undertaken to determine any potential hydrological change as a result of any proposed construction works which may impact on the hydrology of sites within the zone of influence of the implementation of the draft GA Concept, including European Sites designated for their international nature conservation importance. This will also help to inform the overall design of any infrastructure requirements.	

Table 9.2 Mitigation Measures continued

Environmental aspect	Mitigation measure	Relevant to which principle
BIO	**Water Pollution** Where proposed works has the potential to result in water pollution, and there is hydrological connectivity to a European Site e.g., the Shannon Estuary (designated SPA and SAC), Surface Water Management Plans (SWMPs) will be prepared and implemented during construction. SWMPs will include appropriate measures such as temporary silt fencing, cut off ditches, settlement ponds and bunds set up early in construction to capture runoff and prevent ingress of sediments and contaminants into existing drainage infrastructure where necessary. Where implementation of the principles presents a challenge to existing drainage systems, and/or the operation of a local drainage system is known to be complicated by interactions between river, groundwater and sewer systems or river and canal systems, submission of a Water Protection Plan and detailed site drainage plans will be required with planning applications associated with developments arising from the implementation of the draft GA Concept, if a European Site falls within the zone of influence.	MEZ1, MEZ3, MEZ7, MEZ8, MEZ9, CIZ1, CIZ3, CIZ4, CIZ5, CIZ7, CIZ8, IEZ2, IEZ3, IEZ5, IEZ7, AMZ6, AMZ7, GDZ1, GDZ2, GDZ3, BZ1, BZ3, BZ4, TAZ2, SZ1 and WZ2.
	Air Quality Where increased air pollution may result in adverse effects on habitats, potential solutions will be implemented to mitigate air pollution. This may include tree planting to reduce deposition of pollutants on a site (this is site and habitat dependent); preparation and implementation of dust management plans, screening and the provision of compensatory habitat (where practicable).	
	Noise, vibration, and visual disturbance Development proposals will provide evidence that the design does not result in increased noise, vibration, or visual disturbance to important ecological receptors within the zone of influence, in particular those that are QI/SCIs of European Sites e.g., the Shannon Estuary (designated SPA and SAC), to the degree that the noise/vibration/ visual disturbance affects the integrity of the ecological receptor.	
	Lighting Proposals arising from the implementation of the draft GA Concept will demonstrate, where relevant, that the design of lighting minimises the incidence of light spillage or pollution into the surrounding environment and that there is no unacceptable adverse effect on the integrity of European Sites (i.e. no unacceptable adverse effect on QIs/SCIs of European Sites) e.g., the Shannon Estuary (designated SPA and SAC).	

Table 9.2 Mitigation Measures continued

Environmental aspect	Mitigation measure	Relevant to which principle
L&S	**Contamination** Ensure that adequate soil protection measures are undertaken where appropriate on any developments arising from the implementation of the draft GA Concept. Adequate and appropriate investigations shall be carried out into the nature and extent of any soil and groundwater contamination and the risks associated with site development work, particularly where brownfield development is proposed.	MEZ1, MEZ3, MEZ6, MEZ7, MEZ8, MEZ9, CIZ1, CIZ3, CIZ4, CIZ5, CIZ7, CIZ8, IEZ2, IEZ3, IEZ5, IEZ7, AMZ5, AMZ6, AMZ7, GDZ1, GDZ2, GDZ3, BZ1, BZ3, BZ4, TAZ2, SZ1 and WZ2.
WAT	**Flood Risk Management Guidelines** Any major developments resulting from the implementation of the draft GA Concept shall be subject to plan/project level flood risk assessments.	MEZ1, MEZ3, MEZ6, MEZ7, MEZ8, MEZ9, CIZ1, CIZ3, CIZ4, CIZ5, CIZ7, CIZ8, IEZ2, IEZ3, IEZ5, IEZ7, AMZ5, AMZ6, AMZ7, GDZ1, GDZ2, GDZ3, BZ1, BZ3, BZ4, TAZ2, SZ1 and WZ2.
	Sustainable Drainage Systems (SuDS) Any new developments associated with the implementation of the draft GA Concept should seek to tie into the existing SuDS on the site.	
AQ, C&N	**Air** Any developments arising from the implementation of the draft GA Concept should comply with the IE Licence requirements and contribute to achieving greenhouse gas emission targets. Dust management plans shall be prepared and implemented for any major construction/repurposing/upgrade works associated with the implementation of the draft GA Concept, particularly works related to the removal of ash from the ASA.	MEZ1, MEZ3, MEZ8, MEZ9, CIZ1, CIZ2, CIZ3, CIZ4, CIZ5, CIZ7, CIZ8, IEZ2, IEZ3, IEZ7, AMZ7, GDZ1, GDZ2, GDZ3, BZ1, BZ2, BZ3, BZ4, TAZ2 and WZ2.
	Climate adaptation and resilience Improve resilience and adaptation to climate change by taking into account issues including the following in the location and design of any developments/plans arising from the implementation of the draft GA Concept: • Flood risk; • Susceptibility to major accidents/disasters; and • Extreme temperature. Any new projects arising from the implementation of draft GA Concept shall adhere to the COMAH Regulations (2015).	

Table 9.2 Mitigation Measures continued

Environmental aspect	Mitigation measure	Relevant to which principle
AA&CH	**Archaeological Heritage** Where practicable, developments arising from the implementation of the draft GA Concept should protect archaeological heritage by implementing the relevant provisions of the Planning and Development Act 2000 (as amended), the National Monuments Act, 1930 (as amended), the Valetta Principles for the Safeguarding and Management of Historic Cities, Towns and Urban Areas and the Convention for the Protection of the Architectural Heritage of Europe (hereafter referred to as the Granada Convention) (Council of Europe 1985). Any changes to archaeological heritage resulting from any new developments, underground works, upgrades, or alterations to existing infrastructure arising from the implementation of the draft GA Concept, shall be in accordance with the relevant legislation. Consultation with the National Monuments Service of the Department of Housing, Local Government and Heritage should be carried out for any plans/projects resulting from the implementation of the draft GA Concept where impacts on protected sites are likely to arise. Any developments associated with the implementation of the draft GA Concept should contribute, where relevant, towards the protection and preservation of underwater archaeological sites in riverine, intertidal, and sub-tidal locations.	ME1, MEZ3, MEZ8, MEZ9, CIZ1, CIZ2, CIZ3, CIZ4, CIZ5, CIZ7, CIZ8, IEZ3, IEZ7, AMZ7, GDZ1, GDZ2, GDZ3, BZ1, BZ2, BZ3, BZ4, TAZ2, SZ1 and WV2.
	Architectural Heritage Where possible, developments arising from the implementation of the draft GA Concept should contribute towards the protection of architectural heritage by adhering to the relevant legislative provisions of the Planning and Development Act 2000 (as amended) in relation to architectural heritage and the policy guidance contained in the Architectural Heritage Protection Guidelines 2011 (and any updated/ superseding documents). Any changes to surrounding architectural heritage or its curtilage, resulting from any new developments, underground works, upgrades or alterations to existing infrastructure resulting from the implementation of the draft GA Concept, shall be in compliance with relevant legislation. Any plans/projects arising from the implementation of the draft GA Concept will have regard to the National Inventory of Architectural Heritage (NIAH), Records of Protected Structures (RPS) and Sites and Monuments Record (SMR). Where possible developments arising from the implementation of the draft GA Concept should provide a buffer area around protected sites, structures and or monuments that will be maintained free from any new structures. Any plans/projects arising from the implementation of the draft GA Concept will have regard to aspects of heritage not fully covered by those held on formal records - e.g. the wealth of vernacular heritage.	

Table 9.2 Mitigation Measures continued

Environmental aspect	Mitigation measure	Relevant to which principle
AA&CH	**Under Water Cultural/ Archaeological Heritage** Where any development arising from the implementation of the draft GA Concept has the potential to result in negative effects on underwater cultural heritage, a programme of pre-development underwater archaeological impact assessment should be scoped into the design process as soon as is practicable. The underwater archaeological impact assessment should be carried out at the earliest possible stage to facilitate the embedding of any recommended further mitigation within the detailed design for the project, as necessary, in order to ensure the preservation in-situ of any identified/potential underwater cultural heritage and to develop an informed archaeological strategy to be implemented in agreement with the Department co-ordinated by the Development Applications Unit (DAU) of the DHLGH. Any development in the marine environment at Moneypoint has the potential to disturb undiscovered underwater cultural heritage. The collection and interpretation of side-scan sonar and bathymetry information by qualified archaeologists as part of any future development projects will minimise any impacts or the possibility of destruction of underwater and undiscovered heritage features in areas of heritage potential.	ME1, MEZ3, MEZ8, MEZ9, CIZ1, CIZ2, CIZ3, CIZ4, CIZ5, CIZ7, CIZ8, IEZ3, IEZ7, AMZ7, GDZ1, GDZ2, GDZ3, BZ1, BZ2, BZ3, BZ4, TAZ2, SZ1 and WV2.
L&V	Developments and plans arising from the implementation of the draft GA Concept should contribute, where possible, towards the protection of county and local level landscape designations from incompatible developments. Any developments which may arise from the implementation of the draft GA Concept that have the potential to result in negative effects on these designations shall be accompanied by an assessment of the potential landscape and visual impacts of any such development. This will demonstrate that potential landscape effects have been anticipated and avoided to a level consistent with the sensitivity of the landscape and the nature of the designation. Protect amenity value and minimise negative effects on amenity value resulting from any new developments, underground works, upgrades, or alterations to existing infrastructure arising from the implementation of the draft GA Concept. Any developments arising from the implementation of the draft GA Concept should protect the landscape character and visual potential of the coast and conserve the character and quality of seascapes. Any developments arising from the implementation of the draft GA Concept adjoining the coastline must take cognisance of the visual and ecological sensitivity of the adjoining coastline, which includes the Lower River Shannon SAC (site code 0002165) and River Shannon and River Fergus Estuaries SPA. Cognisance shall be given to the information and recommendations contained in the Landscape Strategy for Ireland 2015-2025 and Section 14.2.1 of CCDP (Landscape Character Assessment of County Clare) during the development of any projects and plans arising from the implementation of the draft GA Concept. Any future plans/programmes arising from the implementation of the draft GA Concept will have regard to existing and new landscape guidance documents.	MEZ1, MEZ3, MEZ8, MEZ9, CIZ1, CIZ2, CIZ3, CIZ5, CIZ7, IEZ2, IEZ3, IEZ5, AMZ7, GDZ1, GDZ3, BZ4 and TAZ2.

Table 9.2 Mitigation Measures continued

Environmental aspect	Mitigation measure	Relevant to which principle
MA	**Resources and Waste** All waste arising during any construction or upgrade works arising from the implementation of the draft GA Concept shall be managed and disposed of in accordance with relevant legislation. Waste management plans shall be implemented to minimise waste and ensure correct handling and disposal of construction wastes streams. Where possible ensure that the principles of reduce, reuse and recycle are implemented on any developments arising from the implementation of the draft GA Concept. Land-Use and Infrastructure Any developments arising from the implementation of the draft GA Concept should protect public assets and infrastructure including services and utility infrastructure (electricity, gas, telecommunications, water supply, wastewater infrastructure etc).	MEZ1, MEZ3, MEZ6, MEZ7, MEZ8, MEZ9, CIZ1, CIZ3, CIZ4, CIZ5, CIZ7, CIZ8, IEZ2, IEZ3, IEZ5, IEZ7, AMZ4, AMZ5, AMZ6, AMZ7, GDZ1, GDZ2, GDZ3, BZ1, BZ2, BZ3, BZ4, TAZ2, SZ1 and WZ2.
All	All works should be carried out in compliance with Construction Environmental Management Plans (CEMP). CEMPs shall be prepared for any major construction/upgrade works associated with the implementation of the draft GA Concept. The CEMP shall include, but not limited to, the following information: • Description of the project; • Description of the construction works required (including duration and phasing, location, sensitive receptors etc); • Details of any environmental assessments carried out to inform the CEMP; • Roles and responsibilities (including training and competencies); • Details on environmental management, including details of any environmental management systems, identification of the relevant regulations and requirements, environmental awareness and commitments; • Identification of potential negative environmental effects and mitigation measures to reduce or avoid said impacts (including mitigation measures relating to population and human health, biodiversity, land and soils, water, air and climate, archaeological, architectural and cultural heritage, landscape and visual, material assets (including infrastructure, waste and resources); and • Procedures for audits, monitoring and inspections.	MEZ1, MEZ3, MEZ8, MEZ9, CIZ1, CIZ3, CIZ4, CIZ5, CIZ7, CIZ8, IEZ2, IEZ3, IEZ5, IEZ7, AMZ6, AMZ7, GDZ1, GDZ3, BZ1, BZ4, TAZ2 and WZ2.
	Operational Phase Maintenance Plans should be developed where relevant for any major developments arising from the implementation of the draft GA Concept.	
	Any developments arising from the implementation of the draft GA Concept shall be subject to the relevant environmental assessments, as required (i.e. Environmental Impact Assessment, Environmental Impact Assessment Screening, Appropriate Assessment, Habitats Regulations Assessment).	

In conclusion, the mitigation measures relevant to the draft GA Concept include those listed in Table 9.2, in addition to the implementation of all inherent mitigation outlined in Section 9.1.1 of the SEA ER (ESB's IE Licence (Ref. P0605-04), compliance with relevant EU Environmental Directives and applicable National Legislation, Policies, Plans and Guidelines and the OPs as outlined in the draft GA Concept). It is considered that the combination of mitigation measures and inherent mitigation has potential to mitigate significant environmental effects both at plan level and at individual project level.

Mitigation Measures
Combined Appropriate Assessment (AA) Screening and Natura Impact Statement (NIS)

Mitigation

Overview

The purpose of mitigation in the AA process is to outline the strategies and measures to avoid, reduce or offset potential adverse effects on the integrity of European sites, their QIs and SCIs. Mitigation measures are designed to ensure, wherever possible, that the draft GA Concept will not adversely affect the integrity of the Lower Shannon SAC and the River Shannon and River Fergus Estuaries SPA or further more distantly situated European sites. The approach taken in this AA is to first identify the in-built mitigation measures outlined within the draft GA Concept and secondly, where adverse effects still exist, recommend mitigation measures to avoid any remaining adverse effects both alone and in-combination. Section 7.2 of the combined Screening for AA and NIS outlines the in-design mitigation measures whilst Section 7.3 provides the additional recommended mitigation measures.

In Design Mitigation within the draft GA Concept

A number of the overarching policies of the draft GA Concept emphasise the protection of the natural environment. This includes OP1 which states:

"The Green Atlantic @ Moneypoint Concept will be implemented having due regard for the sensitivity of the local environment, including the adjoining coastline, which includes the Lower River Shannon SAC and the River Shannon and River Fergus Estuaries SPA."

OP2 states:

"As required under prevailing legislation, development proposals will be required to comply with the requirements of the Environmental Impact Assessment and Habitats Directives"

OP3 states:

"Mitigation measures identified by project specific environmental assessment and approved as part of the statutory consenting process, will be implemented to mitigate against impacts arising on the local environment."

OP10 states:

"Where appropriate, development proposals will be subject of design level modelling to determine any potential hydrological change that may arise and impact on the hydrology of sites within the zone of influence of the site, including European Sites designated for their international nature conservation importance. Such models will inform mitigation strategies and ensure that site infrastructure is appropriately designed."

Throughout the draft GA Concept, the importance of the Lower Shannon SAC and the River Shannon and River Fergus Estuaries SPA and the below mitigation measures have been identified.

Land Use Zone	Mitigation identified within the draft GA Concept – Principles	Reference location within draft GA Concept
Marine Energy Zone (MEZ)	All development proposals will have regard to the prevailing land use zoning of the site, and the visual and ecological sensitivity of the adjoining coastline, noting the proximity to a European site. As such, any development in this area will be required to demonstrate that it does not negatively impact on the conservation objectives of the adjoining Lower River Shannon SAC and River Shannon and River Fergus Estuaries SPA.	MEZ2 - Page 26
Coastalw Infrastructure Zone (CIZ)	Any development in this area will be required to demonstrate that it does not negatively impact on the conservation objectives of the adjoining Lower River Shannon SAC (site code 0002165) and River Shannon and River Fergus Estuaries SPA, or that circumstances prevail whereupon consent can be granted having regard to broader considerations.	CIZ2 - Page 27
Industrial Energy Zone (IEZ)	All development proposals will be developed having regard to the prevailing land use zoning of the site, and the visual and ecological sensitivity of the adjoining coastline. Any development in this area will be required to demonstrate that it does not negatively impact on the conservation objectives of the adjoining Lower River Shannon SAC and River Shannon and River Fergus Estuaries SPA.	IEZ6 - Page 28
Ash Management Zone (AMZ)	Any new development within this zone will be subject of robust environmental assessment to confirm that it does not impact on the on-going management of the capped ASA. Specifically a detailed Hydrogeological Risk Assessment will be prepared and a construction methodology submitted to the EPA for approval, in advance of works being permitted or commenced.	AMZ4 - Page 29

Recommended Mitigation for the draft GA Concept

Overview

Mitigation measures are recommended in the following subsections. The mitigation measures are presented per the relevant QIs and SCIs that have been identified as at risk of adverse effects within this report.

It is noted that, given the nature of the draft GA Concept which is a relatively high-level plan document, identification of project specific mitigation measures is not always possible given the lack of detail on the extent and nature of development which is likely to arise as a result of the adoption of the strategy objectives and principles.

Mitigation measures required in respect of any project level development will be identified and implemented to ensure that the impacts at the project level are fully addressed wherever possible. Where mitigation is not possible, for example in the case of habitat loss effects arising from development of the Coastal Infrastructure Zone, there may be a requirement for the project to be considered in respect of Article 6(4) of the Habitats Directive. This is discussed further below.

Mitigation measures set out below should be viewed in context as overarching principles of mitigation which will be applied to individual projects arising from the draft GA Concept objectives and principles to mitigate impacts upon European sites.

Lower River Shannon SAC

Estuaries, Reefs, Perennial Vegetation of Stony Banks

The following mitigation is recommended for any future specific project proposals that may arise as a result of the draft GA Concept in regards to the QI marine habitats of the Lower Shannon SAC:

Estuaries

Any development associated with the Coastal Infrastructure or Marine Energy Zones will ensure that the NPWS detailed COs for the Lower Shannon SAC are not undermined. Any exceptions to this will be addressed through Article 6(4) procedures, as discussed below.

- Any project level development associated with the Coastal Infrastructure Zone and Marine Energy Zone shall be subject to a Screening for AA (and full AA where appropriate) and be carried out by a suitably qualified ecologist.
- Any future project proposals shall seek to avoid and minimise any impacts upon this habitat through careful selection of areas for development, type of infrastructure used and scale of project.
- Suitable mitigation measures shall be required at project level stage to avoid or reduce any potential adverse effects on the COs of the habitat once the details of the type of development and the level of construction works and impacts are known; and
- Future project proposals shall seek to avoid development during sensitive seasons.

- Any project level development associated with the Coastal Infrastructure Zone and Marine Energy Zone shall be subject to a Screening for AA (and full AA where appropriate) and be carried out by a suitably qualified ecologist.
- Any future project proposals shall seek to avoid and minimise any impacts upon this habitat through careful selection of areas for development, type of infrastructure used and scale of project.
- Suitable mitigation measures shall be required at project level stage to avoid or reduce any potential adverse effects on the COs of the habitat once the details of the type of development and the level of construction works and impacts are known; and
- Future project proposals shall seek to avoid development during sensitive seasons.

Reefs

Any development associated with the Coastal Infrastructure or Marine Energy Zones will ensure that the NPWS detailed COs for the Lower Shannon SAC are not undermined. Any exceptions to this will be addressed through Article 6(4) procedures, as discussed below.

- Any project level development associated with the Coastal Infrastructure Zone and Marine Energy Zone shall be subject to a Screening for AA (and full AA where appropriate) and be carried out by a suitably qualified ecologist.
- Any future project proposals shall seek to avoid any impacts upon this habitat through careful selection of areas for development, type of infrastructure used and scale of project.
- Suitable mitigation measures shall be required at project level stage to avoid or reduce potential adverse effects on the COs of the habitat once the details of the type of development and the level of construction works and impacts are known; and
- Future project proposals shall seek to avoid development during sensitive seasons.

Perennial Vegetation of Stony Banks

Any development associated with Coastal Infrastructure Zone and Marine Energy Zone will ensure that the NPWS detailed COs for the Lower Shannon SAC are not undermined. Any exceptions to this will be addressed through Article 6(4) procedures, as discussed below.

- Any project level development associated with the Coastal Infrastructure Zone and Marine Energy Zone shall be subject to a Screening for AA and be carried out by a suitably qualified ecologist;
- Suitable mitigation measures shall be required at project level stage to avoid or reduce potential adverse effects on the COs of the habitat once the details of the type of development and the level of construction works and impacts are known; and
- Any future project proposals shall seek to avoid any impacts upon this habitat through careful selection of areas for development, type of infrastructure used and scale of project.

Otter

- Any future project proposals associated with the draft GA Concept area will ensure that the NPWS detailed COs for the Lower Shannon SAC are not undermined;
- Any project level development arising from the draft GA Concept shall be subject to a Screening for AA (and full AA where appropriate), informed by appropriately timed surveys for the species and be carried out by a suitably qualified ecologist;
- Any future project proposals shall aim to avoid construction in sensitive areas such as feeding and breeding areas, minimise the use of high noise emission activities such as impact piling and blasting;
- Any future project proposals shall aim to enforce speed limits for vehicles used in construction and establish a code of conduct to avoid disturbance to otters both during construction activities and in transit to construction area if entering areas of high abundance;
- Where piling methods are proposed as part of a project proposal, a noise and vibration assessment shall be carried out prior to any future works insofar as to avoid any potential impacts on the QI;
- Suitable mitigation measures shall be required at project level stage to avoid or reduce potential adverse effects on the COs of the species once the details of the type of development and the level of construction works and impacts are known; and
- Any future project proposals shall aim to avoid construction during sensitive periods for otter, employ soft starting procedures for any piling activities and/or passive acoustics deterrents.

Common Bottlenose Dolphin

- Any future project proposals associated with the draft GA Concept will ensure that the NPWS detailed COs for the Lower Shannon SAC are not undermined. Any exceptions to this will be addressed through Article 6(4) procedures, as discussed below;
- Any project level development arising from the draft GA Concept shall be subject to a Screening for AA (and full AA where appropriate) and be carried out by a suitably qualified ecologist;
- Any future project proposals that may interact with the marine environment shall adhere to the NPWS 2014 Guidance to Manage the risk to Marine Mammals from Man-Made Sound Sources in Irish Waters and subsequent future iterations of the guidance;
- Any future project proposals shall aim to minimise the use of any high noise emitting activities and/or machinery within the ZoI of the foreshore area so as to avoid indirect impacts to the species;
- Where piling methods are proposed as part of a project proposal, a noise and vibration assessment shall be carried out prior to any future works insofar as to avoid any potential impacts on the QI;
- Suitable mitigation measures shall be required at project level stage to avoid or reduce potential adverse effects on the COs of the species once the details of the type of development and the level of construction works and impacts are known; and
- Any future project proposals arising from the draft GA Concept which has the potential to interact with common bottlenose dolphin shall consult with NPWS, IWDG and any other relevant organisations.

Fish species

Sea Lamprey and River Lamprey

Any future project proposals associated with the draft GA Concept will ensure that the NPWS detailed COs for the Lower Shannon SAC are not undermined. Any exceptions to this will be addressed through Article 6(4) procedures, as discussed below.

- Any project level development arising from the draft GA Concept shall be subject to a Screening for AA (and full AA where appropriate) and be carried out by a suitably qualified ecologist;
- Any future project proposals arising from the draft GA Concept which has the potential to interact with sea or river lamprey and their associated habitat shall consult with NPWS, Inland Fisheries Ireland and any other relevant organisations;
- Where piling methods are proposed as part of a project proposal, a noise and vibration assessment shall be carried out prior to any future works insofar as to avoid any potential impacts on the QI;
- Suitable mitigation measures shall be required at project level stage to avoid or reduce potential adverse effects on the COs of the species once the details of the type of development and the level of construction works and impacts are known; and
- Any future project proposals affecting the estuarine environment shall aim to avoid construction at sensitive times for the species.

Atlantic Salmon

Any future project proposals associated with the draft GA Concept will ensure that the NPWS detailed COs for the Lower Shannon SAC are not undermined. Any exceptions to this will be addressed through Article 6(4) procedures, as discussed below.

- Any project level development arising from the draft GA Concept shall be subject to a Screening for AA (and full AA where appropriate) and be carried out by a suitably qualified ecologist;
- Where piling methods are proposed as part of a project proposal, a noise and vibration assessment shall be carried out prior to any future works insofar as to avoid any potential impacts on the QI;
- Any future project proposals arising from the draft GA Concept which has the potential to interact with Atlantic Salmon and its associated habitat shall consult with NPWS, Inland Fisheries Ireland and any other relevant organisations;
- Suitable mitigation measures shall be required at project level stage to avoid or reduce potential adverse effects on the COs of the species once the details of the type of development and the level of construction works and impacts are known; and
- Any future project proposals affecting the estuarine environment shall aim to avoid construction at sensitive times for the species.

River Shannon and River Fergus Estuaries SPA

SCIs

Any future project proposals associated with the draft GA Concept area must ensure that the NPWS detailed COs for the River Shannon and River Fergus Estuaries SPA are not undermined. Any exceptions to this will be addressed through Article 6(4) procedures, as discussed below.

- Any project level development arising from the draft GA Concept shall be subject to a Screening for AA (and full AA where appropriate), informed by an appropriate suite of bird surveys and carried out by a suitably qualified ecologist;
- For the application of any future project level proposals, dedicated site counts throughout summer and winter months will be required for any application to establish the use, if any, of birds within the draft GA Concept area;
- Where piling methods are proposed as part of a project proposal, a noise and vibration assessment shall be carried out prior to any future works insofar as to avoid any potential impacts on the QI;
- Future project proposals shall give regard to avoidance of siting structures within sensitive areas for SCIs, avoid installation/construction works during sensitive seasons (i.e. breeding), identify then avoid construction in resting and foraging areas, avoid large-scale continuous illuminations, minimise the use of high noise emission activities (e.g. piling or blasting), integrate noise suppression techniques when appropriate and use sound insulation on plant equipment and device design; and
- Any future project proposals arising from the draft GA Concept which has the potential to interact with the SCIs of the SPA and associated habitat shall consult with NPWS, Birdwatch Ireland and any other relevant organisations.

Operational Phase Management of Heavy Fuel Oil

Mitigation measures governing the use, including transport and delivery of HFO, at the site have been set out within the Natura Impact Statement which accompanied the consented scheme submissions (An Bord Pleanála case 319080). While such measures are considered as comprising a part of that application they also apply to the ongoing use of HFO at the Moneypoint site, with associated potential effects arising from large-scale spillage of HFO on a range of European sites, as discussed above.

The following measures are being and will continue to be implemented at the site for control of HFO.

Measures to Prevent an Oil Spill in Transit

Measures will be implemented during the transport of HFO to Moneypoint including that the vessels shipping the HFO will comply with the International Safety Guide for Oil Tankers and Terminals (ISGOTT 6) produced by Oil Companies International Marine Forum (OCIMF) and the International Chamber of Shipping (ICS). Furthermore, recommendations of the International Maritime Organization will be implemented, as necessary.

Measures to Address an Oil Spill within the Shannon Estuary

Moneypoint Generating Station is part of the Shannon Estuary Anti-Pollution Team (SEA-PT). SEA-PT has developed an Oil Spill Contingency Plan that covers the Shannon estuary from Limerick City to the mouth of the Shannon Estuary, at a notional line from Loop Head (County Clare) to Kerry Head (County Kerry).

The objectives of the plan are:

- To prevent further pollution/damage caused by the spill
- To contain and clean up a marine spill
- Cause no further damage to the marine environment or create unacceptable risk to those responding to or impacted by the incident.

More specifically, the plan will:

- Mobilise appropriate personnel, equipment and other resources
- Make all necessary notification to relevant authorities and agencies
- Instigate appropriate containment, recovery and clean-up operations to control and mitigate the effects of the spill and contribute to the restoration of the environment
- Initiate, as appropriate, wildlife rescue and rehabilitation operations
- Gather evidence throughout the operation for possible legal action
- Maintain accurate records so that the cost of the response operation may be accurately assessed. The plan contains measures to be implemented in the event of an oil spill, including:
  - Discovery and notification of the appropriate personnel.
- Identification of a Tier 1, 2 or 3 incident:
  - ***Tier 1:*** a Tier 1 incident is one in which a small spill can be dealt with by personnel in the immediate vicinity and that has no external impact. Each installation / works area in the area of the plan has enough equipment to respond to a Tier 1 incident. In the event of a Tier 1 being activated, the spiller or installation personnel will respond in accordance with their local procedures and the Duty Harbour Master will monitor the response.
  - ***Tier 2:*** a Tier 2 incident is one that will require the combined resources of the organisations represented on the SEA-PT team. It will also require the involvement of regulatory bodies, local authorities, advisors and advisory bodies. In general, all spills in the Shannon Estuary, other than minor ones, will require a Tier 2 response. A Tier 2 response will require the activation of Shannon Foynes Port Company (SFPC) Incident Management Team and the SEA-PT. This will instigate notifications to the Coast Guard and Local Authorities and Tier 2 response specialists.
  - ***Tier 3:*** a Tier 3 incident is a major oil pollution event with potential for environmental, social and economic impacts that are beyond the capability of local resources. It will require local, national and probably international resources. A Tier 3 response is initiated by contacting the Coast Guard. A response at this level will be coordinated under the National Contingency Plan and within the Management of Major Emergencies Framework.

- Incident notification and response process is detailed
- Tier escalation matrix is provided
- An Incident Response and an Incident Action Plan are in place
- ESB has a supply of oil booms available, and this is also a requirement for the IE licence.

Measures for unloading of HFO

- The following measures are in place and will continue to be implemented during HFO unloading:
- Oil unloading arm and valves on the jetty are manned at all times
- The full length of the HFO fuel line is inspected periodically (currently frequency, every 2 hours)
- Pressure and temperature is constantly checked and recorded
- Radio contact is maintained with the ship, the control room and persons involved in the procedure
- The oil sump located underneath the jetty is emptied prior to arrival of the oil ship
- Security is maintained on the jetty while unloading
- Firefighting equipment is positioned in place prior to arrival of the oil ship
- Oil spill containment equipment is located on the jetty
- Oil dry is positioned on the jetty (currently 2 tonne minimum)
- Jetty oil unloading arm area and the HFO. Tank head spaces are designated as Atmospheres Explosiibles (ATEX) Areas
- Hot work and smoking is prevented while unloading is taking place
- The pipework and valves are maintained as per oil tank and pipework technical standards.

Subject to the application of these mitigation measures it is envisaged that the risks associated with a large-scale oil spill at the site as a result of the ongoing use of HFO, would be fully mitigated.

Underwater Noise and Vibration

As set out above, in respect of the Lower River Shannon SAC and the associated QI populations of common bottlenose dolphin, projects arising from the draft GA Concept should be subject to their own project -specific AA, which should include an assessment of the potential underwater noise and vibrational effects arising upon marine mammals.

- Furthermore, projects arising from the draft GA Concept objectives and principles shall adhere to the NPWS 2014 Guidance to Manage the risk to Marine Mammals from Man-Made Sound Sources in Irish Waters and subsequent future iterations of the guidance
- Subject to the implementation of these mitigation measures it is envisaged that any likely significant underwater noise or vibrational effects upon marine mammal QI populations, including those of all SACs within the respective management units and those designated on account of seal populations within the known foraging ranges for the respective species will be fully mitigated.

Recommended Mitigation to Address In-Combination Effects

In-combination effects shall be addressed by the mitigation proposed above in the above sections. Projects and plans discussed within the in-combination assessment (Section 4.7 of the combined Screening for AA and NIS) were assessed as incorporating their own measures, sufficient to fully mitigate any likely significant effects arising as a result of their construction or operation.

Mitigation Measures
Strategic Flood Risk Assessment (SFRA) Report Flood Risk Management

Mitigation Measures

Avoidance and Substitution

Development in areas at risk of flooding shall be avoided. The seaside area of the Buffer Zone, directly west of the Ash Management Zone is currently at risk of coastal flooding due to low existing levels and absence of any defences. Only "Water Compatible Development" shall be permitted within Flood Zone A, as described in Table 2. Access roads are also permitted within this area if alternative emergency access and egress routes are provided.

If the Coastal Infrastructure Zone is developed as shown in Figure 2 of the SFRA Report, this will contribute in reducing coastal flood risk in the Buffer Zone. As a result, developments other than "Water Compatible Development" may be permitted in accordance with Table 2 and Table 3 of the SFRA Report.

Finished Floor Level

The majority of the ESB Moneypoint site is at low risk of flooding. Due to the proximity of the site to the coast, minimum flood protection levels are recommended below, in accordance with the SFRA of the County Clare Development Plan 2023-2029.

Although tidal flooding events are relatively short-lived compared to other types of flooding, such as fluvial flooding, it is advisable to establish a minimum level for any proposed development to safeguard against it.

The Extreme Water Level during the 1 in 200-year flood event presented in Table 4 of the SFRA are used as the basis for the flood risk management measures. For highly vulnerable and less vulnerable development, the Mid-Range Future Scenario (MRFS) is considered an appropriate allowance for climate change (Table 5-2 of the SFRA).

Table 6 Recommended minimum FFL as per County Clare SFRA

	Recommended minimum FFL (mOD)
Extreme Water Level - 0.5% - Present Day (ICWWS 2018 – Node S10)	3.39
Sea Level Rise (MRFS)	0.5
Freeboard (Table 5-3 of the SFRA)	0.5 (at areas at risk of wave overtopping and surge)
Total	4.39

The majority of the ESB Moneypoint site stands well above the minimum finished floor level, which will provide protection against extreme coastal flooding. Additional protection against wave action is recommended in areas within the Marine Energy Zone or the Coastal Infrastructure Zone, if it is to be developed, which would need to consider wave action and operational requirements. Therefore, a detailed wave overtopping analysis is recommended to be undertaken while evaluating the various configuration options of the facility.

The finished flood level (FFL) of any new buildings, platforms and facilities within the development shall also consider the surrounding levels and risk of surface water ingress that may occur during a rainfall exceedance event.

Surface Water Drainage System

At areas where buildings are proposed, a surface water drainage system shall ensure no increase in flood risk to the ESB Moneypoint site. Surface water runoff shall be managed in alignment with the principles outlined in the Greater Dublin Strategic Drainage Study. This study provides details on the process and design of Sustainable Urban Drainage Systems (SUDS). Drainage components shall be designed in line with Part H of the Building Regulations, BS EN 752 Drain and Sewer Systems outside Buildings, relevant CIRIA guidance documents and Irish Water requirements for the design of drainage systems.

The surface water drainage system for the development shall be regularly maintained. This includes undertaking regular inspections of the drains and various SuDS features by ensuring that any debris which may have accumulated is removed. This will ensure that the risk of blockage of the drains is reduced.

As part of the maintenance program, the inlet of the Molougha culvert under the Ash Management Zone and Buffer Zone shall be inspected and maintained to prevent blockages by removing wood, debris and any other objects obstructing the flow.

Access and Egress Routes

As shown in Figure 11 of the SFRA, there is a section of the N67 susceptible to flooding during the present-day 0.5% coastal AEP (1 in 200-year event). Nonetheless, there are alternative routes that ensure uninterrupted access and egress to the ESB Moneypoint site, therefore avoiding the need for mitigation measures.

Residual Risk

Residual risk refers to the remaining level of risk after all mitigation measures have been put in place. In the context of the watercourse culvert beneath the Ash Management Zone, there exists a residual risk that it may become blocked. If blockage occurred, rising water levels within the pond will not pose a risk to any infrastructure inside or outside of the designated ESB Moneypoint site boundary. This is due to the local topography, which would convey any potential floodwaters to adjacent low-lying fields.

Consequently, this residual risk is considered acceptable. It is worth highlighting that any blockage would be promptly detected and addressed by station personnel within a matter of hours.

Energy for generations