

BERWICK BANK WIND FARM

Pre-Application Consultation Report

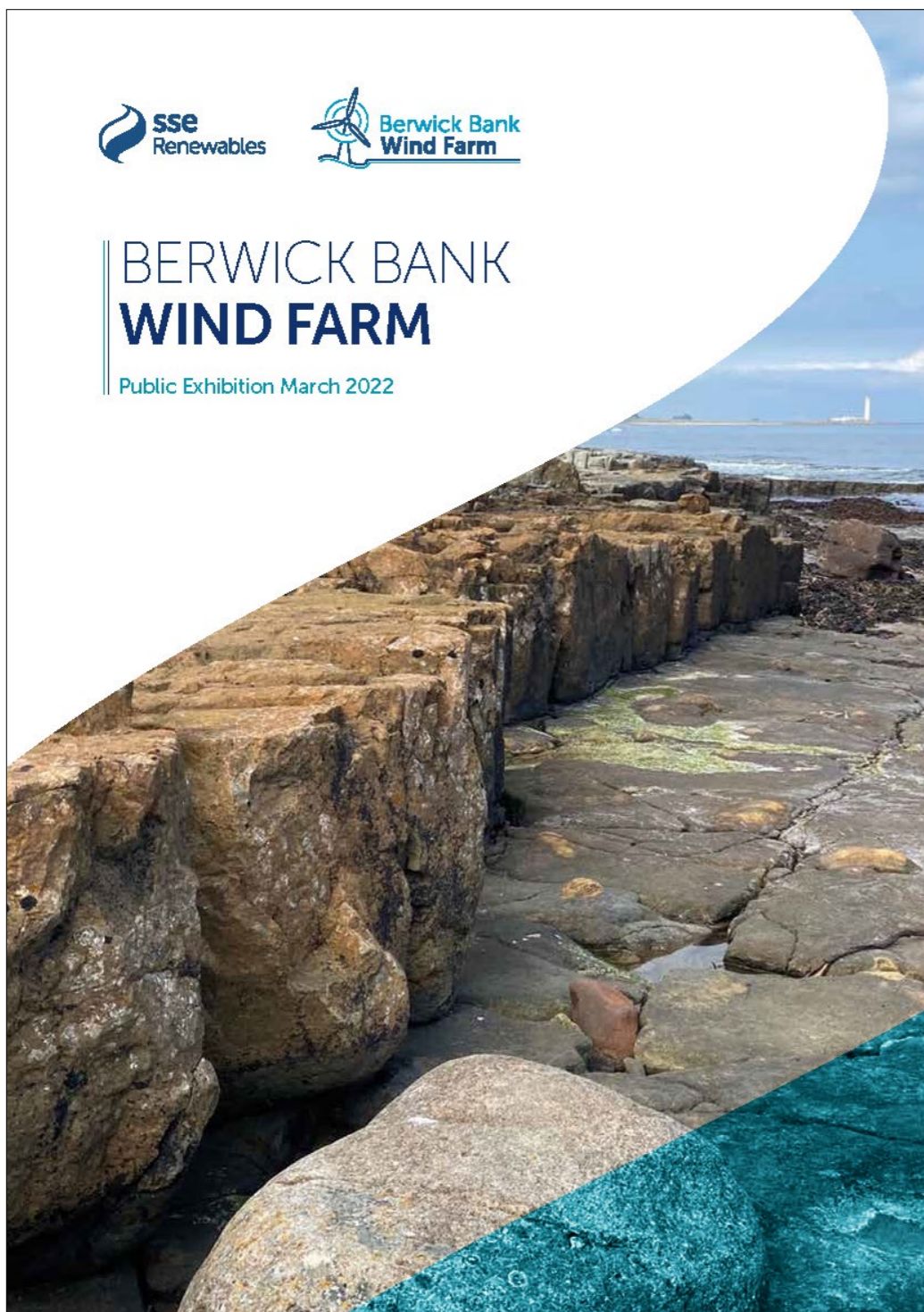
Appendix 14
December 2022



APPENDIX 14. FOURTH ROUND OF CONSULTATION

Materials

An A4 booklet



II WHO WE ARE

SSE is the leading generator of renewable electricity in the UK and Ireland, providing energy needed today while building a better world of energy for tomorrow.



It develops and operates low-carbon infrastructure supporting the net zero transition, including onshore and offshore wind, hydro power, electricity transmission and distribution grids, efficient gas and energy from waste, alongside providing energy products and services for businesses.

UK listed, SSE is a major contributor to the UK and Ireland economies, employs 12,000 people and is real Living Wage and Fair Tax Mark accredited.

SSE Renewables is a leading developer, operator, and owner of renewable energy across the UK and Ireland, with a portfolio of around 4GW of onshore wind, offshore wind, and hydro.

Part of the FTSE-listed SSE plc, its strategy is to drive the transition to a net zero future through the world-class development, construction, and operation of renewable energy assets. SSE Renewables owns nearly 2GW of operational onshore wind capacity with over 1GW under development.

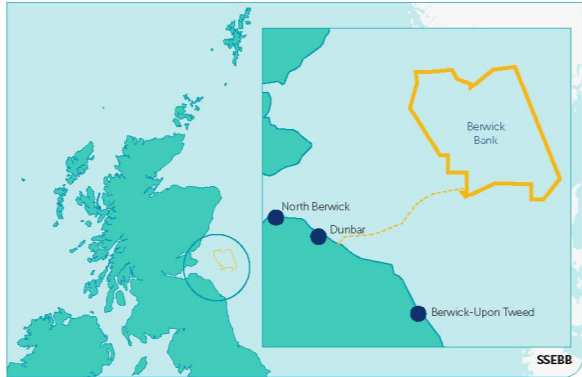
We're aiming to deliver enough new renewable projects to generate 30TWh by 2030, trebling our renewable energy output from 2019 levels. This will make a significant contribution to decarbonising the power sector and be on track to achieving net zero emissions by 2050.

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PROJECT OVERVIEW

Berwick Bank Wind Farm (the Project) will be located in the central North Sea, approximately 43 km offshore off the East Lothian coastline. It has the potential to deliver up to 4.1 GW of installed capacity, making it one of the largest offshore opportunities in the world. It will have an operational design lifetime of approximately 35 years.



Project Background
 Berwick Bank Wind Farm is in the development stage and previously the Project was comprised of two separate proposals, Berwick Bank Wind Farm and Marr Bank Wind Farm. Following initial rounds of consultation, we have decided to combine our proposals into one single opportunity – Berwick Bank Wind Farm.

Over ten years SSE Renewables has gathered an enormous amount of data on the site, including conducting one of the world's largest aerial bird surveys, this has enabled us to put forward a more environmentally sensitive design. Berwick Bank Wind Farm will connect to the electricity grid at Branxton, near Torness, in East Lothian and will have a secondary connection point, the location of which is still to be determined.

The Project will be capable of generating enough clean, renewable energy to power over five million homes, equivalent to all of Scotland's households twice over, and avoiding eight million tonnes of carbon dioxide every year – similar to removing all of Scotland's annual car emissions.

The Scottish Government have recently set themselves a target of achieving 11GW of installed offshore wind capacity by 2030, with a capacity of 4.1GW. Berwick Bank Wind Farm is crucial to the success of achieving this target.

Project Timeline*

March 2022 – Public consultation	May 2022 – Planning application submitted
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PROJECT DETAILS ONSHORE

Project Overview
 Following a detailed site selection process, we have identified our preferred landfall, cable corridor, and substation location for the Project. The site selection process considered seven different landfall sites and eleven different substation locations.

The landfall sites were narrowed down to two preferred locations and their associated substations. The two preferred locations given detailed consideration were at Skateraw (close to Skateraw Harbour) and Thorntonloch Beach.

Skateraw Landfall was selected as the preferred landfall due to environmental, engineering and land considerations. A key factor for not selecting Thorntonloch landfall was the limited availability of space at Thorntonloch Beach due to Neart na Gaoithe (NnG) Offshore Wind Farm's cable route reaching landfall in the same area. Constraints were identified around engineering feasibility at Thorntonloch due to the presence of steep cliffs and other environmental constraints such as the bathing water designation, sand dune habitat and a watercourse.

Skateraw Landfall, the cable corridor, substation and onshore design parameters are illustrated in the figures below. Please note that figures and information below are indicative.



Onshore Proposed Development Parameters:

- Number of maximum onshore cable trenches: **8**
- Approximate length of cable corridor to Branxton substation: **3349m**
- Maximum width of cable corridor: **142m**
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From landfall, the cable corridor runs south crossing under the East Coast Mainline, the A1 and then connects to the substation, which will be in the large agricultural field south of the A1. From our substation the cable corridor routes due south, crossing Braidwood Burn, before connecting to the Branxton Grid Substation, which is being developed by SP Energy Networks.

For Berwick Bank Wind Farm, we are undertaking an Environmental Impact Assessment (EIA) for both the onshore and offshore aspects of the Project. The onshore EIA considers a broad range of potential impacts on, for example, the natural environment (e.g., woodland), wildlife (e.g., otters), and local residents. The findings of the EIA will be written in an EIA Report that will be published online and in print copy when we submit our planning application.

The onshore EIA is currently being completed. This will evaluate the potential impacts of the proposed development to determine where mitigation or control measures needs to be applied to lessen those effects.

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ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

The EIA is a process to identify the potentially significant effects that could result from a proposed development on sensitive receptors. EIA is used to evaluate the design solution but can also influence the proposed construction, operation and decommissioning methods to remove or minimise the environmental impacts of the Project.

Onshore EIA Report	Physical Environment	Geology, Hydrology, Soils and Flood Risk Climate Change, Greenhouse Gases and Circular Economy	Offshore EIA Report
	Biological Environment	Ecology and Ornithology	
	Human Environment	Traffic and Transport	
		Cultural Heritage Landscape and Visual Land Use, Tourism and Recreation Socio-economics Noise	
		Physical Processes Climatic Effects (addressed in offshore physical, biological and human environment) Benthic Subtidal and Intertidal Ecology Fish and Shellfish Ecology Marine Mammals Ornithology Commercial Fisheries Shipping and Navigation Aviation, Military and Communications Cultural Heritage Settings Seascape and Visual Resources Infrastructure and Other Users Socio-economics and Tourism Addressed in offshore biological environment topics	

For Berwick Bank Wind Farm, the Project team will be creating two separate EIAs, one focusing on the on-shore elements of the Project and another focusing on the off-shore elements.

As part of the EIA processes, we seek the views of a diverse range of organisations, from East Lothian Council, Marine Scotland and their statutory consultation bodies to local community groups and residents. Our aim is to gain feedback on the Project and where possible seek to find ways to avoid or minimise the impacts that the Project may have.

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EIA ONSHORE

Based on the consultation feedback provided to date, the following aspects are considered to be an important part of the onshore EIA process.

Construction Traffic

We understand there are concerns about construction traffic using local roads. Whilst it is necessary for our construction traffic to use some of the local roads, we are developing a Construction Traffic Management Plan (CTMP), which would be implemented throughout the construction phase, with the aim of reducing the impact on local road users and residents living in the area. This would be subject to the approval of East Lothian Council should we secure planning consent. We have taken on board the comments provided by residents of Skateraw and are currently assessing a variety of construction traffic options with this feedback in mind.

Noise

We understand there may be concerns about construction noise and noise generated by the proposed substation. Our noise specialists are completing a noise impact assessment that models noise levels and the potential impacts on residents. This study has helped with our substation design, and further studies will be undertaken to ensure noise impacts will be avoided or reduced as far as possible.

Wildlife & Habitats

We are working with a team of ecologists to determine the impact on habitats and wildlife in the area. Initial investigations have shown that the land use is primarily agricultural. Where significant impacts are identified, we will develop suitable control and mitigation measures to avoid or reduce the impact.

Hydrology

We have mapped out the watercourses across the area and will continue to work with specialist hydrologists to ensure we avoid or reduce the impacts during construction. This will include potential impacts on Private Water Supplies as well as consideration of flood risk and climate change which will be detailed in the EIA Report.

Landscape & Visual

We appreciate that our substation will result in a feature in the landscape. Through careful design we have been able to reduce the visual impact and, through the EIA process we will identify further mitigation to help minimise the impact on the landscape and the views experienced by residents.

As part of our proposal we are currently assessing screening options with our project Ecologists and also our Landscape & Visual consultants.

Cultural Heritage

The East Lothian coastline contains an array of archaeological and cultural heritage which has been considered as part of our design, and which will be further assessed as part of the EIA. We are working with a team of experienced archaeologists to identify any potential effects during construction and to reduce these where possible.

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PROJECT DETAILS OFFSHORE

Project Overview
The key offshore components associated with Berwick Bank Wind Farm will include:

Wind Turbines

- The offshore cable route will be approximately 69km in length. This is measured from the offshore wind farm site to the proposed Skateraw Landfall.
- The maximum rotor blade diameter will be no greater than 310 m, with a maximum blade tip height of 355 m above lowest astronomical tide (LAT) and a minimum blade tip height of 37 m above LAT.
- Up to 307 wind turbines (each comprising a tower section, nacelle and three rotor blades) and associated support structures and foundations.
- Wind turbines with a generating capacity between 14 MW and 24 MW are being considered. The final number of wind turbines will be dependent on the final turbine design chosen and the capacity of individual wind turbines. Selection of the final turbine design will be informed by a range of factors including environmental and engineering survey results.

Schematic of an Offshore Wind Turbine. Two types of wind turbine support structures and foundations are being considered – piled jacket and suction caisson jacket.

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PROJECT DETAILS OFFSHORE (CONT.)

Schematic of a Jacket Foundation with Suction Caissons Schematic of a Jacket Foundation with Pin Piles

Offshore Substations & Cables

- Up to ten offshore substation platforms and associated support structures and foundations.
- Cable protection measures are proposed along sections of cable where target burial depths are not achieved. Cable protection measures may be required along up to a maximum of 15% of the cable route.
- A network of cables linking the individual wind turbines to each other and to the offshore substation platforms plus inter-connections between offshore substation platforms (approximately 1,225 km of inter-array cabling and 94 km of interconnector cabling).
- Up to eight offshore export cables connecting the offshore substation platforms to Skateraw Landfall.
- It is possible that the Project may utilise HVAC and/or HVDC solutions.

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EIA OFFSHORE

Topics which are being assessed in the offshore EIA process include:

Ornithology
 The Project team have recently completed one of the largest known digital aerial bird surveys for a single project in the world and have collected vast amounts of data about the prevailing birds in the area. Many of these species, such as puffin, razorbills and guillemot fly close to the water's surface and are not at risk of colliding with the turbines. However, other species such as kittiwake and gannet fly higher. One key design feature of the Project is to raise the 'air gap' of the turbines (the space between the water level and the lowest point of the turbine blade swept area) to a minimum of 37 m above the lowest astronomical tide (LAT). This is as high as eight double-decker buses, and reduces the risk of birds colliding with the turbines.

We are carrying out detailed modelling of likely effects of the Project on bird populations, which will form part of the offshore EIA and the decision-making process.




Marine Considerations
 During the gathering of ornithology data as part of the aerial survey we were also able to gather large amounts of data on marine mammals within the area. Assessing the use of the area by marine mammals is particularly important as they are sensitive to noise and may be impacted by works associated with the construction of the proposed development. In addition to this we have also sought out telemetry data, which has given us a good picture as to how marine mammals (seals in particular) use the sea area in the vicinity of the proposed development.

As we will be placing structures onto the seabed it is important that we know what is living there. Therefore, we have undertaken an extensive benthic survey campaign defining the habitats and species present. This is particularly important as the proposed development sits partially within Firth of Forth Banks Complex Marine Protected Area. We are also assessing the fish and shellfish ecology that is present as these can also be affected, positively and negatively, by the proposed development. This includes assessing any effects that the structures may have on fish distribution and abundance including the effects of the electricity cables on the species present.

The detailed survey work completed to date will allow the team to propose a more environmentally sensitive design.

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EIA OFFSHORE (CONT.)

Seascape & Visual
 The site is located approximately 43 km from the East Lothian Coast, and as such we consider any potential visual impact from the shore to be minimal. As part of the offshore EIA, a Seascape, Landscape and Visual Impact Assessment is being undertaken. This assesses the potential impacts resulting from the construction and operation of the wind farm. This includes photomontages demonstrating the seascape changes anticipated and will present any visual impacts placed that would be upon identified landscape and visual receptors.

Commercial Fisheries
 Commercial fisheries are an especially important sector to the coastal communities around Scotland. Therefore, we have been liaising with key fisheries stakeholders to understand the types of fishing within the area of the proposed development, how important the area is to the sector and the concerns that they may have about the wind farm. By doing this we can understand the effects that we may have on this sector during the different project phases (e.g. construction and operation) and to also allow us to factor in mitigation that may lessen any effects and allow for the least amount of disruption to their activities.




Shipping & Navigation
 The Firth of Forth and Firth of Tay are two important areas for commercial shipping. As the proposed development sits at the mouth of these Firths it is important that we engage with affected stakeholders to understand what, if any, effects there may be on their activities. We have engaged a specialist navigational consultant who ran a hazard workshop on our behalf which resulted in the development of a navigational risk assessment. This will then be used to determine the potential effects of the proposed development on commercial shipping interests in the area and possible measures to mitigate impacts. This will focus on the potential for navigable corridors between the Berwick Bank Wind Farm and other wind farms in the area.

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PROJECT OPPORTUNITIES

Supply Chain
Berwick Bank Wind Farm represents a multi-billion-pound investment and presents an enormous opportunity for the local, Scottish and UK supply chain. Despite still being in the pre-planning stage, to date the Project team have engaged with and utilised several Scottish suppliers, ranging from the hospitality sector, communications sector, local ports, and harbours. As well as Scottish based survey, geotechnical and engineering consultancies.

In April 2020 we held an initial Supply Chain online seminar which was attended by approximately 700 businesses, and we are committed to continuing our engagement with the local supply chain. The Project team is a member of the Midlothian & East Lothian Chamber of Commerce and looks forward to continuing to engage with the chamber on project opportunities.

We are finalising a Socio-Economic Report which will help the Project team determine our approach to working alongside the supply chain.

For further information on how your business can become involved with the Berwick Bank Wind Farm Project please contact our procurement team at berwickbank@sse.com

Community Benefit
SSE Renewables are committed to ensuring that Community Benefit Funds are in place on our projects and as such, a Community Benefit Fund for Berwick Bank Wind Farm would be established in the event of a successful planning decision. In this event, the Project



team will engage with various stakeholders such as local residents, East Lothian Council and the relevant Community Councils to discuss the best way to proceed with a Community Benefit Fund, ensuring it is as efficient and beneficial as possible.

Local Opportunities
To date the Project team have been delighted to work alongside various local organisations such as Fringe By The Sea and The Scottish Seabird Centre. We are keen to ensure that Berwick Bank Wind Farm also provides benefits to the local community, and we look forward to working alongside local organisations and projects as our plans develop.

We are committed to inspiring the next generation of young talent and as part of this, we are members of the Midlothian & East Lothian Industry and Education Partnership Group. Our aim is to roll out a variety of STEM activities within the local education sector once COVID-19 guidance allows.

Keep In Touch
We would be delighted to hear feedback from all interested stakeholders, and you can submit any feedback directly to the Project team at: berwickbank@sse.com

You can also register for updates on the latest news relating to Berwick Bank on our project website: www.berwickbank.com



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YOU SAID, WE DID

	YOU SAID	WE DID
Visual Impact →	Concern over the size of substation (footprint) and disruption of the local view, from some residents of Innerwick.	SSER are completing the landscape and visual impact assessment to determine the best practical mitigation that can be applied to screen the substation. The Project team have also created and implemented a 3D model to accurately provide stakeholders with as fair a visual representation of our proposals as possible.
Supply Chain →	Desire for elements such as blade and turbine manufacturing to be in Scotland and the UK, and for local businesses to be involved in works associated with the proposed development.	SSE has a proven track record of investing in UK infrastructure, including supporting what would be the UK's largest Tower manufacturing facility in Nigg. The Project team are members of the local Chamber of Commerce and are meeting Paul McLennan, MSP for East Lothian in March 2022 to discuss a local skills development forum to support the renewable industry in the area.
Construction, Noise and Light Pollution →	Concerns surrounding construction traffic, noise, and light pollution.	SSER are currently in dialogue with the Tarmac cement works to assess options for accessing the site via the east of Skateraw. We appreciate construction traffic on the local roads is a concern for residents and the Project team will continue to liaise with local residents during the planning process to ensure an effective Traffic Management Plan is developed to minimise the impact. Regarding light pollution, it is not the position of SSER to have the onshore substation permanently lit up. Lighting would be used as required during maintenance operations to ensure safe working, but building facades are not proposed to be illuminated during the night. Regarding noise during construction, SSER have undertaken and completed a noise assessment which confirms noise modelling falls within acceptable industry limits as per British Standard best practise. We have modified our plans for Horizontal Direction Drilling where possible to reduce working hours and location of drilling plant to reduce noise impacts. Following feedback from local residents we have also relocated one of our temporary construction compounds to increase distance between the site and local properties.
Working Hours →	Local residents have stated they would like to see SSER apply for a Monday – Friday working hours arrangement.	We are seeking 7 days a week, 24 hour working permissions, however this is to ensure we can complete each phase of construction promptly and to allow us to fully complete a Horizontal Directional Drilling run once it has begun. We will look to minimise working hours where possible and liaise closely with local residents should exceptional circumstances arise.

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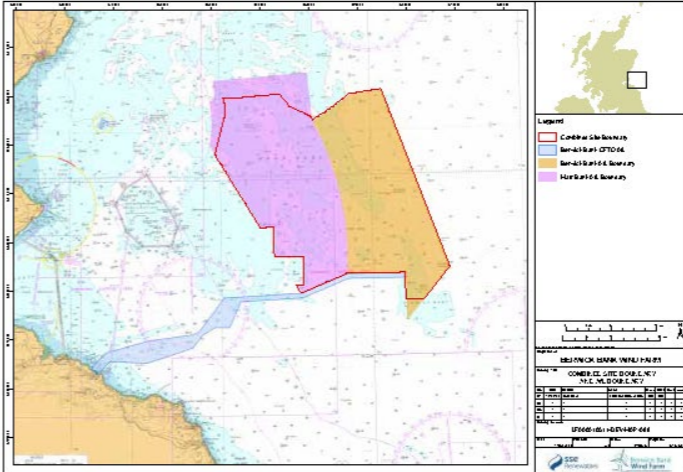
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	YOU SAID	WE DID
Bird Protection	Comments made on the impact our proposals may have on the local seabird populations.	SSER have finished 25 months' worth of aerial and boat based Ornithology studies to help inform our design with regards to birds. Initially, this survey work has allowed us to reduce our overall site boundary by approx. 10 percent and identified average flight heights for the prevailing birds in the array area, this has allowed the team to increase the height of turbines to minimise collision risks. Regular meetings are held with stakeholders such as Marine Scotland, RSPB, The Scottish Seabird Centre and NatureScot to discuss ongoing methodology approaches and analysis regarding the protection of seabirds.
Energy Storage	Concern over the risk we generate too much electricity that becomes wasted.	A blend of technologies would be key to the success of the push towards Net Zero and there is great work that has been done on schemes such as battery storage and pumped hydro storage. The ability to convert heat emitted from Transformers to provide local district heating was also raised by a member of the public. The SEM has taken this onboard and is in contact with the member of public that has requested further information on this.
Drainage	Concerns that the project will lead to increased flooding in the area, particular concern was raised in relation to the land north and northeast of the proposed substation.	Based on current studies the evidence does not indicate an increased flood risk, as a result of the substation development or impact on local drainage networks. Given the local concern, SSER have instructed environmental consultants to undertake further study, including liaising with members of the public.
Community Benefit	Query regarding what local benefits the project could create locally (out-with supply chain content.) A request was made to consider whether a crossing of the A1 could be constructed to enhance the local cycling network and provide a safe crossing for residents.	We are willing to engage with local community members to discuss various proposals on an AD-HOC basis and that long term a formal Community Benefit Fund (CBF) would be established, however this would most likely only occur following the decision of the planning process (decision expected 2023-2024) SSER have already been involved in high level discussions with East Lothian Council and other developers on this. The project SEM has committed to revisiting this conversation with East Lothian Council as any arrangement would require the council to construct, maintain and operate a crossing, but in principle, SSER are open to discussing potential funding mechanisms for the proposal.
Project Timelines	Construction periods for the project was raised on several occasions.	Depending on the planning process, construction could potentially start in late 2024, with a first generation of energy in late 2026/early 2027, with an overall project completion and full energisation in 2031. Residents to Skateraw and Innerwick were particularly keen for further information on how long the onshore construction period in this area could be. Construction in the area could be on-going for approximately 2 years.

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ENVIRONMENTAL COMPENSATION UPDATE



Map showing reduction in overall offshore site boundary



Background
Located in the outer Firth of Forth, Berwick Bank Wind Farm has the potential to deliver up to 4.1 GW of installed capacity, making it one of the largest offshore opportunities in the world.

We are in the midst of a climate and nature emergency and the real harm human actions are having on the climate have never been clearer, or more impactful on the world in which we all live. A key part of this impact has been felt in nature and across a variety of habitats.

The key challenge to both our planet and our ecosystems is climate change. Seabirds play a crucial role in our ecosystem and we know that since records began in the 1980s, seabirds have declined by approximately 49 percent.

We believe that Berwick Bank Wind Farm presents a huge opportunity to help address both the climate and nature emergency we are all facing. As part of SSE Renewables consents application for Berwick Bank Wind Farm, we will be ensuring that we propose the most environmentally sensitive design feasible.

A key part of achieving this, is to ensure that we submit a proposal that compensates for any potential residual adverse effects on protected seabird populations that could occur after design based mitigation measures have been implemented.

What can we do?
To ensure that we compensate for any potential impacts we may have on seabirds, SSE Renewables have already made significant changes to our proposals. Over the past two years we have carried out one of the world's largest aerial bird surveys to help inform decisions we make on the project.

These surveys have provided invaluable data, such as highlighting Kittiwake hot spots for feeding within our site boundary. As a result of this, we have reduced our site boundary by approximately 10 percent to reduce potential impacts on birds in this area.

In addition, our surveys have provided us with detailed information on the flight height and patterns of seabirds within the proposed wind farm area. This information has allowed the Project team to increase the height of our turbines to provide a greater gap between the blade tip and the sea to allow flight passage of birds, reducing their risk of collision.

In addition, we are actively exploring a suite of complementary measures to further compensate any impacts Berwick Bank Wind Farm may have on important bird populations.

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ENVIRONMENTAL COMPENSATION UPDATE

Colony Measures
 Colony measures are a direct measure that we can implement right away to provide benefits to the existing seabird population. These may include proposals such as providing additional wardens and support at key seabird colonies or controlling the population of known predators, such as rats, to increase the chances of successful breeding at colonies.

We are also exploring how we can reduce the impact of plastic pollution and how we can provide supplementary feeding for chicks.

Fishery Measures
 We want to work alongside the UK and Scottish Governments, key environmental bodies, and the Scottish fishing industry to propose a solution to the climate and nature crisis that can benefit all parties.

One of the best measures that can be implemented to help increase seabird populations involves changes to the way part or all of the North Sea sandeel fisheries are managed within British waters.

As part of our planning application we will be recommending an extension to the Scottish Government's current closure of Scotland's largest sandeel fishery – SA4 to allow full recovery of the sandeel stocks, followed by management of the stock that fully accounts for the requirements of seabirds.

Sandeels are vital to supporting the viability of seabird populations in the North Sea and sandeel closures would halt and help reverse the declining sandeel population.

Puffin

Sandeels are one of the main sources of food for seabirds during the breeding season and like seabirds, sandeels are also in a steady decline. One of the main reasons for this decline is thought to be because of the impacts of climate change and fishing pressures on the species by international fishing vessels.

This decline in sandeels directly contributes to the reduced breeding productivity and adult survival of certain seabird species, notably kittiwakes. By temporarily closing sandeel fisheries, we can allow the population to recover.

This not only can provide a benefit to seabirds but may also lead to an increase in other species of white fish, creating better fishing conditions for the Scottish fishing fleet.

Berwick Bank Wind Farm is deliverable now and by implementing compensation measures such as this, we can pave the way for future developments to come, allowing Scotland to help solve both the nature and climate emergency we all face.

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Project information boards



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Project information boards

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- Lightning rods maximum height: **25m**

From landfall, the cable corridor runs south crossing under the East Coast Mainline, the A1 and then connects to the substation, which will be in the large agricultural field south of the A1. From our substation the cable corridor routes due south, crossing Braidwood Burn, before connecting to the Branxton Grid Substation, which is being developed by SP Energy Networks.

For Berwick Bank Wind Farm, we are undertaking an Environmental Impact Assessment (EIA) for both the onshore and offshore aspects of the Project. The onshore EIA considers a broad range of potential impacts on, for example, the natural environment (e.g., woodland), wildlife (e.g., otters), and local residents. The findings of the EIA will be written in an EIA Report that will be published online and in print copy when we submit our planning application.

The onshore EIA is currently being completed. This will evaluate the potential impacts of the proposed development to determine where mitigation or control measures needs to be applied to lessen those effects.



Appendix 14. Fourth round of consultation – materials

Project information boards

ENVIRONMENTAL IMPACT ASSESMENT (EIA)

The EIA is a process to identify the potentially significant effects that could result from a proposed development on sensitive receptors. EIA is used to evaluate the design solution but can also influence the proposed construction, operation and decommissioning methods to remove or minimise the environmental impacts of the Project.

Onshore EIA Report	Physical Environment	Geology, Hydrology, Soils and Flood Risk Climate Change, Greenhouse Gases and Circular Economy	Offshore EIA Report
	Biological Environment	Ecology and Ornithology	
	Human Environment	Traffic and Transport Cultural Heritage Landscape and Visual Land Use, Tourism and Recreation Socio-economics Noise	
		Physical Processes Climatic Effects (addressed in offshore physical, biological and human environment) Benthic Subtidal and Intertidal Ecology Fish and Shellfish Ecology Marine Mammals Ornithology Commercial Fisheries Shipping and Navigation Aviation, Military and Communications Cultural Heritage Settings Seascape and Visual Resources Infrastructure and Other Users Socio-economics and Tourism Addressed in offshore biological environment topics	

For Berwick Bank Wind Farm, the Project team will be creating two separate EIAs, one focusing on the on-shore elements of the Project and another focusing on the off-shore elements.

As part of the EIA processes, we seek the views of a diverse range of organisations, from East Lothian Council, Marine Scotland and their statutory consultation bodies to local community groups and residents. Our aim is to gain feedback on the Project and where possible seek to find ways to avoid or minimise the impacts that the Project may have.

EIA ONSHORE

Based on the consultation feedback provided to date, the following aspects are considered to be an important part of the onshore EIA process.

Construction Traffic

We understand there are concerns about construction traffic using local roads. Whilst it is necessary for our construction traffic to use some of the local roads, we are developing a Construction Traffic Management Plan (CTMP), which would be implemented throughout the construction phase, with the aim of reducing the impact on local road users and residents living in the area. This would be subject to the approval of East Lothian Council should we secure planning consent. We have taken on board the comments provided by residents of Skateraw and are currently assessing a variety of construction traffic options with this feedback in mind.

Noise

We understand there may be concerns about construction noise and noise generated by the proposed substation. Our noise specialists are completing a noise impact assessment that models noise levels and the potential impacts on residents. This study has helped with our substation design, and further studies will be undertaken to ensure noise impacts will be avoided or reduced as far as possible.

Wildlife & Habitats

We are working with a team of ecologists to determine the impact on habitats and wildlife in the area. Initial investigations have shown that the land use is primarily agricultural. Where significant impacts are identified, we will develop suitable control and mitigation measures to avoid or reduce the impact.

Hydrology

We have mapped out the watercourses across the area and will continue to work with specialist hydrologists to ensure we avoid or reduce the impacts during construction. This will include potential impacts on Private Water Supplies as well as

consideration of flood risk and climate change which will be detailed in the EIA Report.

Landscape & Visual

We appreciate that our substation will result in a feature in the landscape. Through careful design we have been able to reduce the visual impact and, through the EIA process we will identify further mitigation to help minimise the impact on the landscape and the views experienced by residents.

As part of our proposal we are currently assessing screening options with our project Ecologists and also our Landscape & Visual consultants.



Cultural Heritage

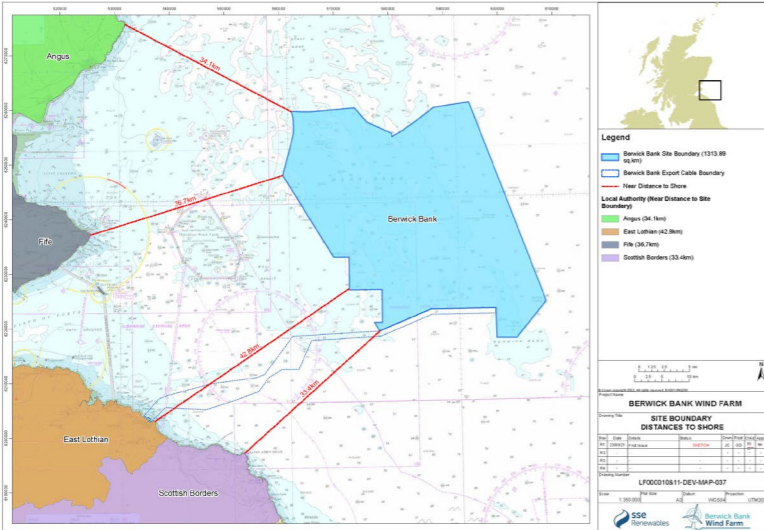
The East Lothian coastline contains an array of archaeological and cultural heritage which has been considered as part of our design, and which will be further assessed as part of the EIA. We are working with a team of experienced archaeologists to identify any potential effects during construction and to reduce these where possible.

Appendix 14. Fourth round of consultation – materials

Project information boards

PROJECT DETAILS OFFSHORE

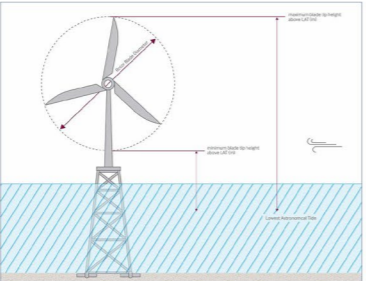





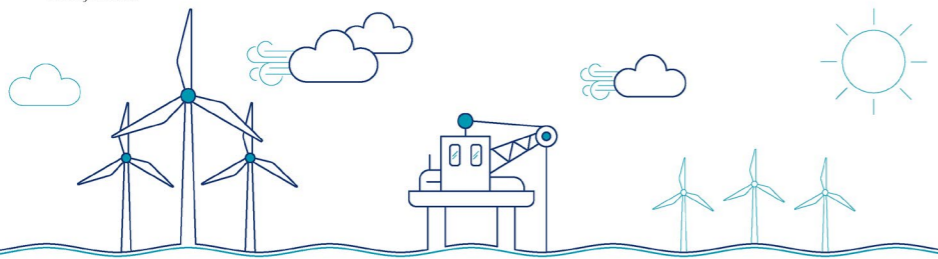
Project Overview
The key offshore components associated with Berwick Bank Wind Farm will include:

Wind Turbines



- The offshore cable route will be approximately 69km in length. This is measured from the offshore wind farm site to the proposed Skateraw Landfall.
- The maximum rotor blade diameter will be no greater than 310 m, with a maximum blade tip height of 355 m above lowest astronomical tide (LAT) and a minimum blade tip height of 37 m above LAT.
- Up to 307 wind turbines (each comprising a tower section, nacelle and three rotor blades) and associated support structures and foundations.
- Wind turbines with a generating capacity between 14 MW and 24 MW are being considered. The final number of wind turbines will be dependent on the final turbine design chosen and the capacity of individual wind turbines. Selection of the final turbine design will be informed by a range of factors including environmental and engineering survey results.

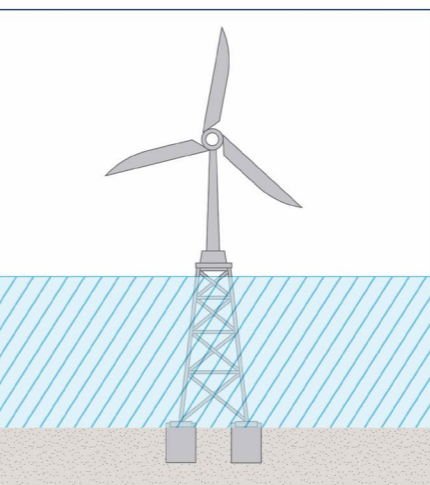


Schematic of an Offshore Wind Turbine. Two types of wind turbine support structures and foundations are being considered – piled jacket and suction caisson jacket.

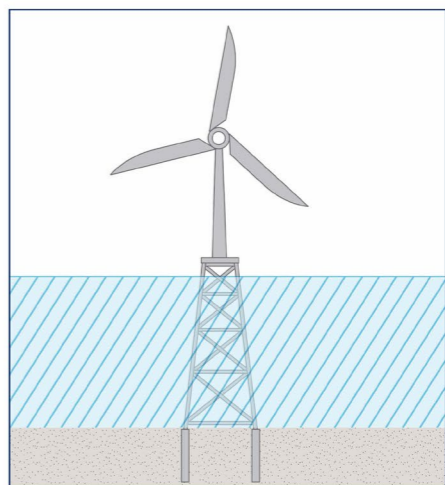


PROJECT DETAILS OFFSHORE (CONT.)



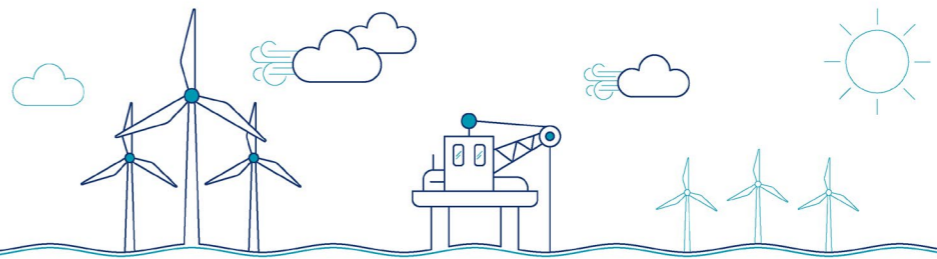
Schematic of a Jacket Foundation with Suction Caissons



Schematic of a Jacket Foundation with Pin Piles

Offshore Substations & Cables

- Up to ten offshore substation platforms and associated support structures and foundations.
- Cable protection measures are proposed along sections of cable where target burial depths are not achieved. Cable protection measures may be required along up to a maximum of 15% of the cable route.
- A network of cables linking the individual wind turbines to each other and to the offshore substation platforms plus inter-connections between offshore substation platforms (approximately 1,225 km of inter-array cabling and 94 km of inter-connector cabling).
- Up to eight offshore export cables connecting the offshore substation platforms to Skateraw Landfall.
- It is possible that the Project may utilise HVAC and/or HVDC solutions.



Appendix 14. Fourth round of consultation – materials

Project information boards

EIA OFFSHORE




Topics which are being assessed in the offshore EIA process include:

Ornithology
 The Project team have recently completed one of the largest known digital aerial bird surveys for a single project in the world and have collected vast amounts of data about the prevailing birds in the area. Many of these species, such as puffin, razorbills and guillemot fly close to the water's surface and are not at risk of colliding with the turbines. However, other species such as kittiwake and gannet fly higher. One key design feature of the Project is to raise the 'air gap' of the turbines (the space between the water level and the lowest point of the turbine blade swept area) to a minimum of 37 m above the lowest astronomical tide (LAT). This is as high as eight double-decker buses, and reduces the risk of birds colliding with the turbines.

We are carrying out detailed modelling of likely effects of the Project on bird populations, which will form part of the offshore EIA and the decision-making process.






Marine Considerations
 During the gathering of ornithology data as part of the aerial survey we were also able to gather large amounts of data on marine mammals within the area. Assessing the use of the area by marine mammals is particularly important as they are sensitive to noise and may be impacted by works associated with the construction of the proposed development. In addition to this we have also sought out telemetry data, which has given us a good picture as to how marine mammals (seals in particular) use the sea area in the vicinity of the proposed development.

As we will be placing structures onto the seabed it is important that we know what is living there. Therefore, we have undertaken an extensive benthic survey campaign defining the habitats and species present. This is particularly important as the proposed development sits partially within Firth of Forth Banks Complex Marine Protected Area. We are also assessing the fish and shellfish ecology that is present as these can also be affected, positively and negatively, by the proposed development. This includes assessing any effects that the structures may have on fish distribution and abundance including the effects of the electricity cables on the species present.

The detailed survey work completed to date will allow the team to propose a more environmentally sensitive design.




EIA OFFSHORE (CONT.)

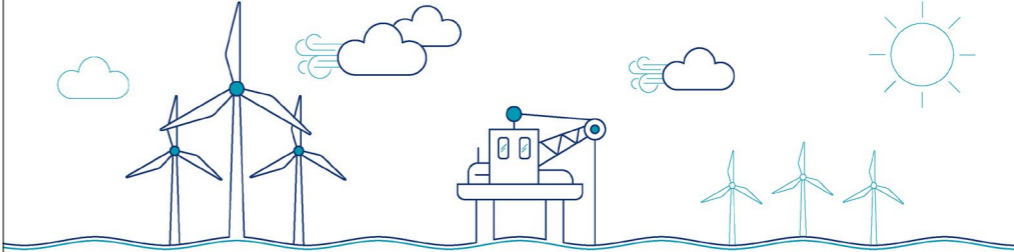



Seascape & Visual
 The site is located approximately 43 km from the East Lothian Coast, and as such we consider any potential visual impact from the shore to be minimal. As part of the offshore EIA, a Seascape, Landscape and Visual Impact Assessment is being undertaken. This assesses the potential impacts resulting from the construction and operation of the wind farm. This includes photomontages demonstrating the seascape changes anticipated and will present any visual impacts placed that would be upon identified landscape and visual receptors.

Commercial Fisheries
 Commercial fisheries are an especially important sector to the coastal communities around Scotland. Therefore, we have been liaising with key fisheries stakeholders to understand the types of fishing within the area of the proposed development, how important the area is to the sector and the concerns that they may have about the wind farm. By doing this we can understand the effects that we may have on this sector during the different project phases (e.g. construction and operation) and to also allow us to factor in mitigation that may lessen any effects and allow for the least amount of disruption to their activities.

Shipping & Navigation
 The Firth of Forth and Firth of Tay are two important areas for commercial shipping. As the proposed development sits at the mouth of these Firths it is important that we engage with affected stakeholders to understand what, if any, effects there may be on their activities. We have engaged a specialist navigational consultant who ran a hazard workshop on our behalf which resulted in the development of a navigational risk assessment. This will then be used to determine the potential effects of the proposed development on commercial shipping interests in the area and possible measures to mitigate impacts. This will focus on the potential for navigable corridors between the Berwick Bank Wind Farm and other wind farms in the area.



Appendix 14. Fourth round of consultation – materials

Project information boards

EIA OFFSHORE (CONT.)




Supply Chain

Berwick Bank Wind Farm represents a multi-billion-pound investment and presents an enormous opportunity for the local, Scottish and UK supply chain. Despite still being in the pre-planning stage, to date the Project team have engaged with and utilised several Scottish suppliers, ranging from the hospitality sector, communications sector, local ports, and harbours. As well as Scottish based survey, geotechnical and engineering consultancies.

In April 2020 we held an initial Supply Chain online seminar which was attended by approximately 700 businesses, and we are committed to continuing our engagement with the local supply chain. The Project team is a member of the Midlothian & East Lothian Chamber of Commerce and looks forward to continuing to engage with the chamber on project opportunities.

We are finalising a Socio-Economic Report which will help the Project team determine our approach to working alongside the supply chain.

For further information on how your business can become involved with the Berwick Bank Wind Farm Project please contact our procurement team at berwickbank@sse.com

Community Benefit

SSE Renewables are committed to ensuring that Community Benefit Funds are in place on our projects and as such, a Community Benefit Fund for Berwick Bank Wind Farm would be established in the event of a successful planning decision. In this event, the Project team will engage with various stakeholders



such as local residents, East Lothian Council and the relevant Community Councils to discuss the best way to proceed with a Community Benefit Fund, ensuring it is as efficient and beneficial as possible.

Local Opportunities

To date the Project team have been delighted to work alongside various local organisations such as Fringe By The Sea and The Scottish Seabird Centre. We are keen to ensure that Berwick Bank Wind Farm also provides benefits to the local community, and we look forward to working alongside local organisations and projects as our plans develop.

We are committed to inspiring the next generation of young talent and as part of this, we are members of the Midlothian & East Lothian Industry and Education Partnership Group. Our aim is to roll out a variety of STEM activities within the local education sector once COVID-19 guidance allows.

Keep In Touch



We would be delighted to hear feedback from all interested stakeholders, and you can submit any feedback directly to the Project team at: berwickbank@sse.com

You can also register for updates on the latest news relating to Berwick Bank on our project website: www.berwickbank.com





YOU SAID, WE DID






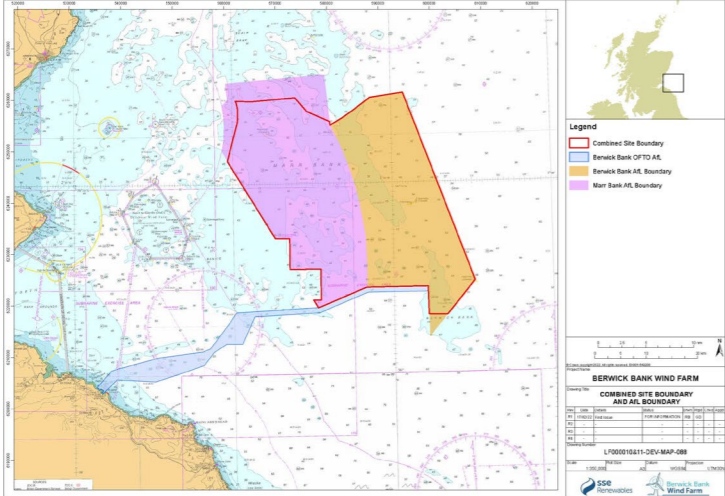
	YOU SAID	WE DID
Visual Impact	Concern over the size of substation (footprint) and disruption of the local view, from some residents of Innerwick.	SSER are completing the landscape and visual impact assessment to determine the best practical mitigation that can be applied to screen the substation. The Project team have also created and implemented a 3D model to accurately provide stakeholders with as fair a visual representation of our proposals as possible.
Supply Chain	Desire for elements such as blade and turbine manufacturing to be in Scotland and the UK, and for local businesses to be involved in works associated with the proposed development.	SSE has a proven track record of investing in UK infrastructure, including supporting what would be the UK's largest Tower manufacturing facility in Nigg. The Project team are members of the local Chamber of Commerce and are meeting Paul McLennan, MSP for East Lothian in March 2022 to discuss a local skills development forum to support the renewable industry in the area.
Construction, Noise and Light Pollution	Concerns surrounding construction traffic, noise, and light pollution.	SSER are currently in dialogue with the Tarmac cement works to assess options for accessing the site via the east of Skateraw. We appreciate construction traffic on the local roads is a concern for residents and the Project team will continue to liaise with local residents during the planning process to ensure an effective Traffic Management Plan is developed to minimise the impact. Regarding light pollution, it is not the position of SSER to have the onshore substation permanently lit up. Lighting would be used as required during maintenance operations to ensure safe working, but building facades are not proposed to be illuminated during the night. Regarding noise during construction, SSER have undertaken and completed a noise assessment which confirms noise modelling falls within acceptable industry limits as per British Standard best practise. We have modified our plans for Horizontal Direction Drilling where possible to reduce working hours and location of drilling plant to reduce noise impacts. Following feedback from local residents we have also relocated one of our temporary construction compounds to increase distance between the site and local properties.
Working Hours	Local residents have stated they would like to see SSER apply for a Monday – Friday working hours arrangement.	We are seeking 7 days a week, 24 hour working permissions, however this is to ensure we can complete each phase of construction promptly and to allow us to fully complete a Horizontal Directional Drilling run once it has begun. We will look to minimise working hours where possible and liaise closely with local residents should exceptional circumstances arise.
Bird Protection	Comments made on the impact our proposals may have on the local seabird populations.	SSER have finished 25 months' worth of aerial and boat based Ornithology studies to help inform our design with regards to birds. Initially, this survey work has allowed us to reduce our overall site boundary by approx. 10 percent and identified average flight heights for the prevailing birds in the array area, this has allowed the team to increase the height of turbines to minimise collision risks. Regular meetings are held with stakeholders such as Marine Scotland, RSPB, The Scottish Seabird Centre and NatureScot to discuss ongoing methodology approaches and analysis regarding the protection of seabirds.
Energy Storage	Concern over the risk we generate too much electricity that becomes wasted.	A blend of technologies would be key to the success of the push towards Net Zero and there is great work that has been done on schemes such as battery storage and pumped hydro storage. The ability to convert heat emitted from Transformers to provide local district heating was also raised by a member of the public. The SEM has taken this on board and is in contact with the member of public that has requested further information on this.
Drainage	Concerns that the project will lead to increased flooding in the area, particular concern was raised in relation to the land north and northeast of the proposed substation.	Based on current studies the evidence does not indicate an increased flood risk, as a result of the substation development or impact on local drainage networks. Given the local concern, SSER have instructed environmental consultants to undertake further study, including liaising with members of the public.
Community Benefit	Query regarding what local benefits the project could create locally (out-with supply chain content). A request was made to consider whether a crossing of the A1 could be constructed to enhance the local cycling network and provide a safe crossing for residents.	We are willing to engage with local community members to discuss various proposals on an AD-HOC basis and that long term a formal Community Benefit Fund (CBF) would be established, however this would most likely only occur following the decision of the planning process (decision expected 2023-2024) SSER have already been involved in high level discussions with East Lothian Council and other developers on this. The project SEM has committed to revisiting this conversation with East Lothian Council as any arrangement would require the council to construct, maintain and operate a crossing, but in principle, SSER are open to discussing potential funding mechanisms for the proposal.
Project Timelines	Construction periods for the project was raised on several occasions.	Depending on the planning process, construction could potentially start in late 2024, with a first generation of energy in late 2026/early 2027, with an overall project completion and full energisation in 2031. Residents to Skateraw and Innerwick were particularly keen for further information on how long the onshore construction period in this area could be. Construction in the area could be on-going for approximately 2 years.

Appendix 14. Fourth round of consultation – materials

Project information boards

ENVIRONMENTAL COMPENSATION UPDATE



Map showing reduction in overall offshore site boundary

Background
 Located in the outer Firth of Forth, Berwick Bank Wind Farm has the potential to deliver up to 4.1 GW of installed capacity, making it one of the largest offshore opportunities in the world.


We are in the midst of a climate and nature emergency and the real harm human actions are having on the climate have never been clearer, or more impactful on the world in which we all live. A key part of this impact has been felt in nature and across a variety of habitats.

The key challenge to both our planet and our ecosystems is climate change. Seabirds play a crucial role in our ecosystem and we know that since records began in the 1980s, seabirds have declined by approximately 49 percent.

We believe that Berwick Bank Wind Farm presents a huge opportunity to help address both the climate and nature emergency we are all facing. As part of SSE Renewables consent application for Berwick Bank Wind Farm, we will be ensuring that we propose the most environmentally sensitive design feasible.

A key part of achieving this, is to ensure that we submit a proposal that compensates for any potential residual adverse effects on protected seabird populations that could occur after design based mitigation measures have been implemented.

What can we do?
 To ensure that we compensate for any potential impacts we may have on seabirds, SSE Renewables have already made significant changes to our proposals. Over the past two years we have carried out one of the world's largest aerial bird surveys to help inform decisions we make on the project.





Kittiwake

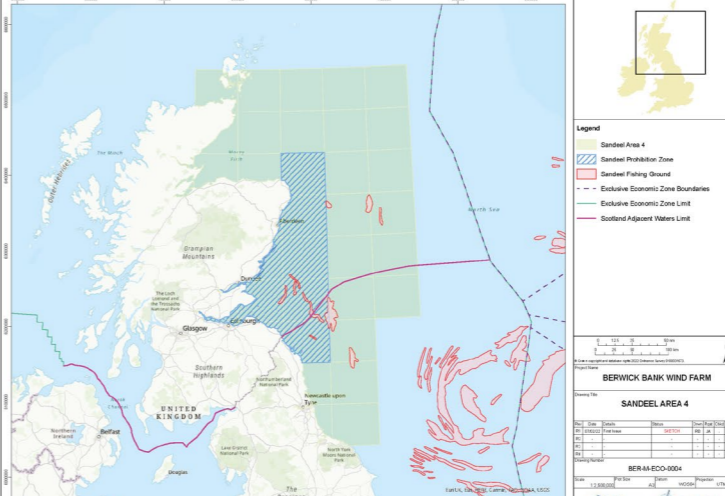
These surveys have provided invaluable data, such as highlighting Kittiwake hot spots for feeding within our site boundary. As a result of this, we have reduced our site boundary by approximately 10 percent to reduce potential impacts on birds in this area.

In addition, our surveys have provided us with detailed information on the flight height and patterns of seabirds within the proposed wind farm area. This information has allowed the Project team to increase the height of our turbines to provide a greater gap between the blade tip and the sea to allow flight passage of birds, reducing their risk of collision.

In addition, we are actively exploring a suite of complementary measures to further compensate any impacts Berwick Bank Wind Farm may have on important bird populations.

ENVIRONMENTAL COMPENSATION UPDATE



Map showing Sandeel Area 4

Colony Measures
 Colony measures are a direct measure that we can implement right away to provide benefits to the existing seabird population. These may include proposals such as providing additional wardens and support at key seabird colonies or controlling the population of known predators, such as rats, to increase the chances of successful breeding at colonies.

We are also exploring how we can reduce the impact of plastic pollution and how we can provide supplementary feeding for chicks.


Fishery Measures
 We want to work alongside the UK and Scottish Governments, key environmental bodies, and the Scottish fishing industry to propose a solution to the climate and nature crisis that can benefit all parties.

One of the best measures that can be implemented to help increase seabird populations involves changes to the way part or all of the North Sea sandeel fisheries are managed within British waters.

As part of our planning application we will be recommending an extension to the Scottish Government's current closure of Scotland's largest sandeel fishery – SA4 to allow full recovery of the sandeel stocks, followed by management of the stock that fully accounts for the requirements of seabirds.

Sandeels are vital to supporting the viability of seabird populations in the North Sea and sandeel closures would halt and help reverse the declining sandeel population.

Sandeels are one of the main sources of food for seabirds



Puffin

during the breeding season and like seabirds, sandeels are also in a steady decline. One of the main reasons for this decline is thought to be because of the impacts of climate change and fishing pressures on the species by international fishing vessels.

This decline in sandeels directly contributes to the reduced breeding productivity and adult survival of certain seabird species, notably kittiwakes. By temporarily closing sandeel fisheries, we can allow the population to recover.

This not only can provide a benefit to seabirds but may also lead to an increase in other species of white fish, creating better fishing conditions for the Scottish fishing fleet.

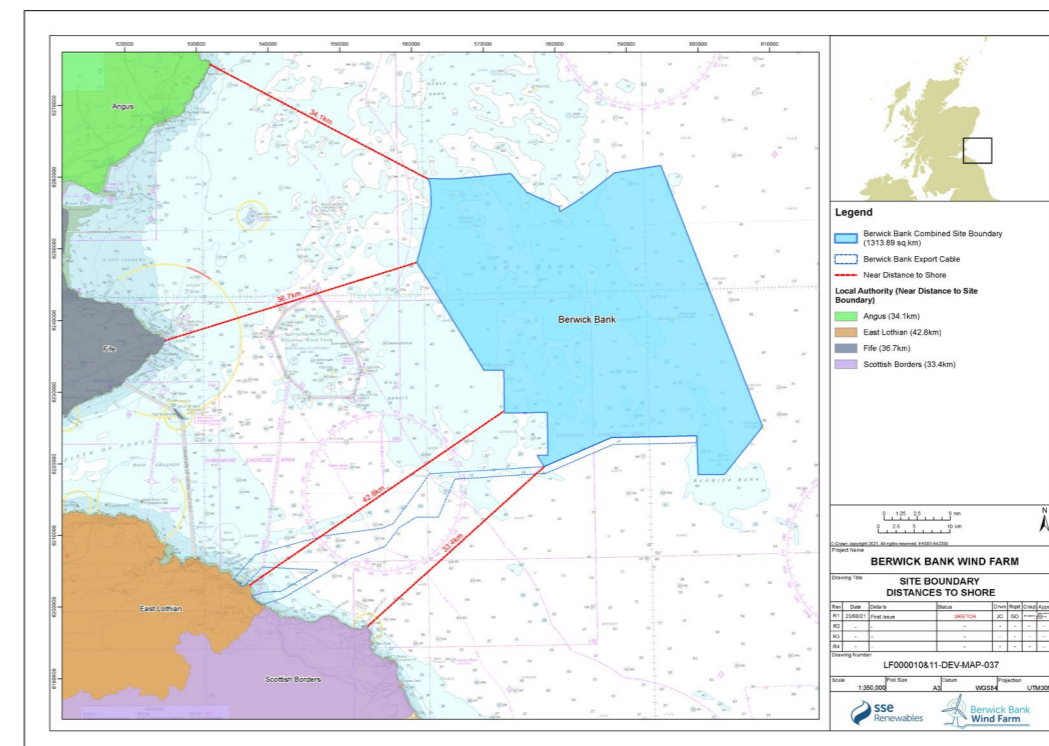
Berwick Bank Wind Farm is deliverable now and by implementing compensation measures such as this, we can pave the way for future developments to come, allowing Scotland to help solve both the nature and climate emergency we all face.

Appendix 14. Fourth round of consultation – materials

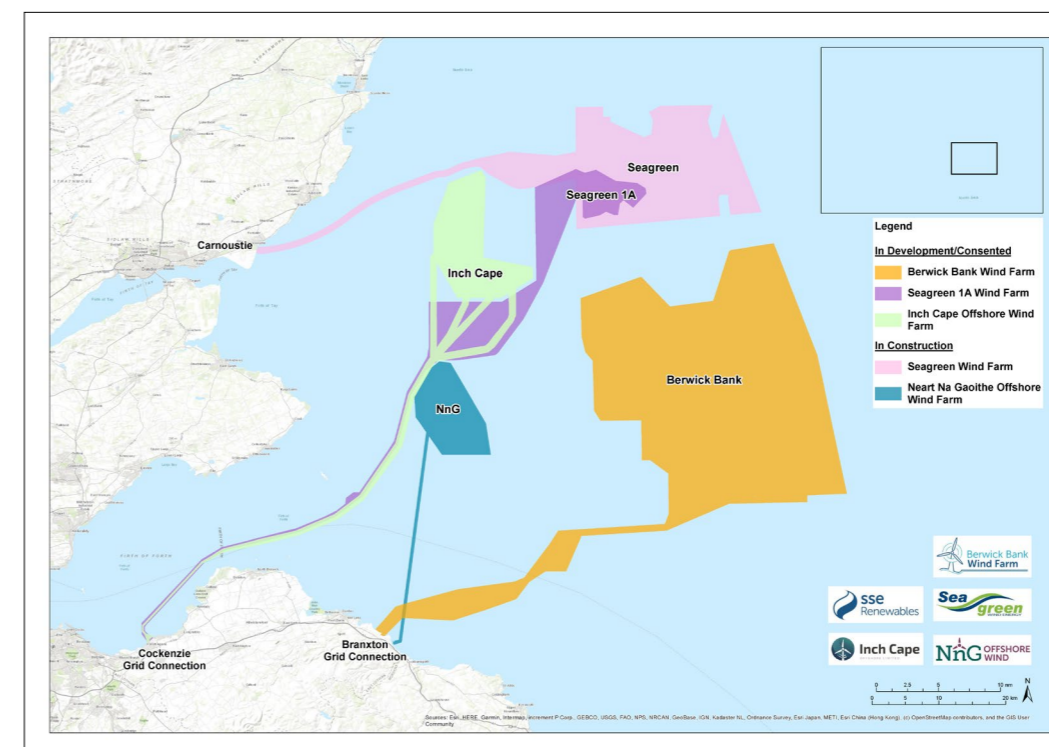
iPads with 3D visualisations



Maps showing distances to the shore

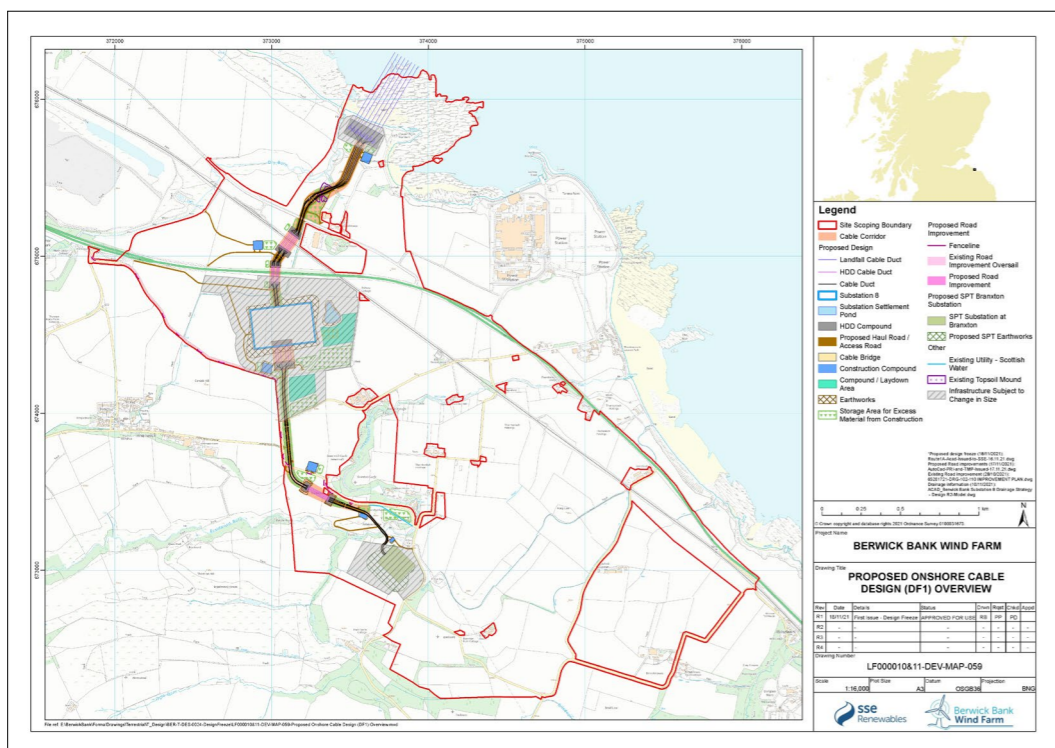


Maps showing Berwick Bank in relation to other developments



Appendix 14. Fourth round of consultation – materials

Maps showing the proposed onshore infrastructure



Project video



3D model

