



# Musdale Wind Farm Proposal

Frequently Asked Questions (FAQS)

Updated April 2021

These updated FAQs provide additional information about the project in response to key questions which have arisen through community consultation and engagement. However, if you do not find what you're looking for and have further questions or would like further information, please get in touch with the Musdale project team using the contact details at the end of this document.



## Location, history, and nature of the site

### Where exactly is Musdale?

The site lies approximately 9km south east of the town of Oban, 5.5km south east of the village of Kilmore, and 5km north-west of the village of Inverinan on Loch Awe. The majority of turbines are located within Kilmore and Kilbride Community Council's area.

### Has there been a wind farm proposal here before?

Yes, there has. The site has long been identified for wind power generation, with areas of the site subject to a previous proposal by a developer called Infinis. A Section 36 application (13/01747/S36) for a wind farm at the proposed Musdale site was submitted by Infinis in July 2013, comprising 16 turbines of 132 metres to blade tip. The turbines were located predominantly across the southern part of the site. Infinis withdrew their application in February 2015 before it was determined by the Scottish Government.

### What are the main characteristics of the site?

The site is currently used for grazing and comprises steep hillside, and rough, marshy moorland interspersed by a number of small watercourses and lochs. The far north east of the site is forested and abuts the northern shores of Loch Nant. The area is remote and sparsely populated, with the only maintained residential buildings within 1km being at Musdale Farm at the end of a minor road from Kilmore. The next closest residential properties are approximately 3km from the site to the north, west and southwest.

The site is undulating and generally slopes towards a valley in the centre of site which runs north east and south west. The south of the site holds the higher ground such as Beinn Dearg, which is the highest point in the site at 484m. From Beinn Dearg the site slopes north eastwards to Loch Sior which has a rough track running along its northern shore to access the small-scale hydro infrastructure around the loch (pipes and small dams).

The hills and ridgelines within the site create an enclosed landform which has a notable influence on containing the extent of visibility across the wider area. The site sits within a 'bowl' of surrounding hills for much of its perimeter with the most open approach being from the north east.



# Project development and planning process

## **What stage is the project at in the planning process?**

The project is currently at an early stage of design.

In November 2020 Vattenfall submitted a Scoping Report to the Scottish Government. This report, which included an early 26-turbine 'scoping' layout, invited key stakeholders (including local Community Councils) and government organisations to comment and input on the proposed scope of the 'Environmental Impact Assessment' (EIA) work. The closing date for comments on the Scoping Report was 17th December 2020.

The feedback received to the Scoping Report has been discussed with key consultees such as Argyll and Bute Council, NatureScot (formerly known as Scottish Natural Heritage), the Scottish Environment Protection Agency, and RSPB Scotland, and has helped shape and refine the final scope of environmental and technical EIA survey work which is now underway.

An electronic copy of the Scoping Report as well as the 'Scoping Opinion' (which captures the scoping feedback received and subsequent guidance from the Scottish Government) can be found on the Scottish Government's Energy Consents Unit website at [www.energyconsents.scot](http://www.energyconsents.scot) by searching for 'Musdale Wind Farm' (or ECU reference ECU00002168). You can also view a copy of the Scoping Report on the project website at [www.vattenfall.co.uk/musdale](http://www.vattenfall.co.uk/musdale). Hard copies of the Scoping Report can be obtained by getting in touch with the Musdale project team using the contact details at the end of this document.

## **How is the site design developed?**

The EIA work that is being undertaken over the next few months is designed to assess, identify, and propose mitigation for any potential impacts of the development on the physical, natural and cultural environment. The results of the EIA work, together with feedback from key consultees, will help to identify site constraints and further develop and refine the design. The EIA work will also be written up into an 'Environmental Impact Assessment Report' (EIAR) which will accompany any planning application submission for Musdale Wind Farm.

In parallel with this we will also be keeping the local Community Councils up to date and listening to their feedback, as well as holding another public exhibition and consultation event later in 2021 to engage with the local community and wider public on the updated design. Ultimately, we are looking to identify ways in which we can improve the proposal by minimising any potential impacts and maximising the associated benefits and opportunities for the area from the project. A further public exhibition will also be held to present the final design around the time that the project is submitted into the planning process.

## **Are the turbine locations fixed?**

The 26-turbine 'scoping' layout is at an early stage of design. As such, turbine numbers and locations are likely to change over the coming months. An updated design and layout will be presented at our next public exhibition, which will be held later in 2021, and community feedback sought.

## **Who makes the final decision on whether the project is consented?**

Due to the proposed scheme having an installed capacity of over 50 megawatts (MW) the proposal will be considered for planning consent by the Scottish Government's Energy Consents Unit. The local planning authority, Argyll and Bute Council, will be a statutory consultee.

## **When will the project be submitted into planning?**

Vattenfall is currently hoping to submit a Section 36 application towards the end of 2021 or early 2022; however, this timescale may move depending on a number of factors including any restrictions on the project due to Covid-19.



# Onshore wind industry



Edinbane Wind Farm

## Why do we need more onshore wind?

Climate change has passed a major tipping point in society and is now, without any doubt, understood to be the biggest issue that mankind faces. Renewable energy is a vital part of our future energy mix to tackle climate change and reduce carbon emissions. Onshore wind has an important part to play in helping the Scottish Government achieve its 2045 target for zero net emissions in response to the climate emergency, as well as the UK Government's Clean Growth Strategy to achieve clean growth whilst also ensuring affordable energy supply for businesses and consumers.

The UK (and Scotland specifically) has the best wind resource in Europe, and onshore wind is one of the most established renewable technologies as well as being one of the most cost effective too. Turbine technology has leapt forward in the last few years, and the industry has worked hard to bring costs down. We're now able to build much more efficient sites and onshore wind is now the cheapest way to generate electricity in the UK.

Renewable UK's webpage titled 'Wind Energy' states that onshore wind already produces "enough clean power to meet the annual needs of more than 7.25 million homes a year" and in 2017 it "produced 9% of the UK's power needs". The UK has "over 12 gigawatts of onshore wind capacity which supports jobs and local economic growth. The cumulative investment impact of the UK's 1,500 operational onshore wind farms is over £35 billion, demonstrating the significant contribution which onshore wind can make to delivering low-cost, low-carbon energy that pays back to consumers."

## What is Vattenfall doing to tackle climate change?

A few years ago, Vattenfall embarked on a journey with a goal to enable fossil-free living within one generation. This is not our sustainability strategy - it's our business strategy. And it is sustainable. We are not just phasing out fossil-emissions from our own operations, we are working in close partnerships with our customers to help them do the same. We have more than 100 years of experience of innovation, and a large and growing portfolio of sustainable and fossil-free electricity.

We believe we can drive innovation through electrification. Five years ago, building on the Swedish heritage of cross-industry innovation, we began a partnership with leading mining and steel companies LKAB and SSAB. Together, we created HYBRIT, with the aim of producing the world's first fossil-free steel. The key is to replace the coal used in the existing steelmaking process with hydrogen produced using fossil-free electricity. This is the biggest shift in the steelmaking industry in 1,000 years. Together, we have built a pilot plant in the Swedish town of Luleå, which will produce the world's first fossil-free steel.

Vattenfall is partnering up to decarbonize other sectors like refineries, transportation, mining and chemical industry, and is committed to meeting the targets in the Paris agreement by phasing out fossil emissions from our operations, and by enabling our customers to do the same.

Vattenfall has also undertaken some specific work on climate change in order to gain a deeper understanding of how climate change is affecting us. It increasingly shapes the way we behave, what we consume and how we decide to organise our daily lives. As such, Vattenfall undertook two surveys, consulting more than 14,000 adults across our seven key markets – a first baseline survey was fielded in December 2019 followed by a second wave in June 2020. We also looked at the way climate change has been discussed in the media and social media. All the data gathered allowed us not only to explore the way the conversations around climate change affected us, but also to track how views on key issues related to climate change have evolved over the last six months. You can find out more by visiting the Vattenfall website under the ‘What we do’ and then ‘Climate Conversation’ headings or by getting in touch with the Musdale project team using the contact details at the end of this document.

### **Why isn't Vattenfall looking at other forms of generation instead?**

Vattenfall produces electricity from many types of energy sources, including onshore wind, offshore wind, solar hydro, gas, biomass, nuclear, gas and coal. However, we are in the process of phasing out fossil-based generation and investing in a greater share of renewable generation.

Whilst it is important for the UK energy market to have a mix of energy sources for electricity generation, onshore wind is one of the most important in helping limit global warming and is also often the cheapest.



## Local benefits from the project



### **What are the potential local benefits that the project could deliver to the area?**

The three main areas of potential local benefits that the project is likely to be able to deliver are: community benefit; maximising local supply chain opportunities; and, shared ownership in the wind farm itself. However, it is important to note that the project is still at an early stage of design and it could be several years before it is determined.

### **Why does Vattenfall look to deliver local benefits from its projects?**

Vattenfall is a company of Swedish heritage, which is important to the way we approach our business and our work with communities. We have clear values and a strong ethos that places emphasis on working closely with local communities to make sure that we are developing projects which can bring a lasting sustainable benefit to the community and future generations. We take a measured, paced and timely approach to explore the views of the community in order to help shape our projects and maximise their benefits.

We believe our wind farms should be assets for local communities, supporting sustainable development locally and enhancing quality of life. It is only fair that the communities nearest our developments share in the benefits of harvesting the local wind resource. For further information about Vattenfall's approach to community benefit please get in touch with the Musdale project team using the contact details at the end of this document.

### **What is community benefit?**

Community benefit for onshore wind farms can take many forms but is typically delivered as an annual cash payment provided voluntarily by the developer to communities closest to the wind farm, for the operational lifetime of the project. However, it is important to us that we maximise the economic opportunity the wind farm could provide for the local area.

Vattenfall is also committed to following the prevailing Scottish Government guidance on community benefit and, in line with this, exploring the possibility of offering a more flexible package of benefits for Musdale Wind Farm, tailored to the community's needs and priorities in the area. More information on the Scottish Government's 'Good Practice Principles for Community Benefits from Onshore Renewable Energy Developments' can be found at: [https://consult.gov.scot/energy-and-climate-change-directorate/onshore-renewable-energy-developments/user\\_uploads/community-benefits-onshore-revised-gpp.pdf](https://consult.gov.scot/energy-and-climate-change-directorate/onshore-renewable-energy-developments/user_uploads/community-benefits-onshore-revised-gpp.pdf).

### **How much could the community benefit be worth?**

Based on the current 26-turbine 'scoping' layout (and installed capacity of 156MW), Musdale Wind Farm could provide a community benefit fund of around £780,000 a year to the local community (or £19.5 million in total based on a 25-year life cycle).

Turbine numbers and technology (as well as Scottish Government guidance on community benefit) can change, which means that the community benefit figure may go up or down. The final figure will be confirmed when (and if) the project receives consent. It is also important to note that community benefit is a voluntary contribution by the developer as well as the fact that community benefit funds are not a 'material' consideration in the planning process.

### **Which areas will benefit?**

It is too early just now for this to be decided, but generally community benefit is usually aimed at those communities closest to the proposal which host infrastructure in their area (turbines, substations, access tracks, etc).

### **What is shared ownership?**

Vattenfall will be offering local communities and organisations the opportunity to invest in (and share ownership of) up to 5% of the Musdale Wind Farm project – should the project be consented. There are, naturally, also risks and challenges when investing in a commercial venture and it is essential that a community or organisation takes its own professional advice before making a decision. If you would like further information on this please get in touch with the Musdale project team using the contact details at the end of this document.

### **Will there be local jobs from Musdale Wind Farm?**

Vattenfall is keen to work closely with the community and local businesses in order to maximise the opportunities for local contracts, jobs and employment. We would like to hear from any local businesses which have an interest in getting involved with Musdale Wind Farm.

On other wind farm projects, Vattenfall has helped local people and local businesses take advantage of renewable energy opportunities by compiling a directory of appropriate local businesses to contact, running supply chain events, and encouraging appropriate training and accreditation, thus benefitting the sustainability of the local economy in the long term.

In May 2012, independent consultancy BIGGAR Economics published their findings into the economic impact of onshore wind farms which concluded that the *"total local direct and supply chain economic impact of the [onshore wind] sector is estimated at 1,100 jobs [1,078] and £84 million GVA [£84.5 million]"*. This report, titled 'Onshore Wind Direct & Wider Economic Impacts', was commissioned by RenewableUK and DECC.

### **Will the turbine towers be sourced locally (from Campbeltown)?**

It's too early to say at this stage as turbine procurement (should the project be consented) is still several years away and the market could change in that time. However, Vattenfall has a strong commitment to working with the local supply chain and aims to procure 60% of components and labour from within Scotland for its projects.

### **Will there be consultation with the community on the potential 'local benefits'?**

The project is still at an early stage of design and it could be several years before it is determined. Despite this, we received a high level of interest from the local community – through the initial online exhibition and consultation event (held between December 2020 and February 2021) – in the local benefits that could be delivered from the proposal. In response to this, we launched an online community benefit consultation survey in April 2021 to gather feedback and begin to explore ideas from the local community on community benefits, maximising local supply chain opportunities, and the opportunity for shared ownership in the wind farm itself – as well as local needs and priorities.

The feedback from the community benefit consultation survey will be reviewed and used to help inform and shape further engagement later in 2021 on the potential benefits that could be delivered from Musdale Wind Farm.



# Community consultation

## **What consultation have you undertaken so far?**

In December 2020, shortly after the project became public, we launched an initial online exhibition and consultation to raise awareness of the project and encourage the local community (and wider public) to share their views with us on the proposal at an early stage of design. This has helped to identify issues and concerns early in the process as well as potential opportunities and benefits that could be delivered from the project.

We also launched a community benefit consultation survey in April 2021 to gather feedback and begin to explore ideas from the local community on community benefits, maximising local supply chain opportunities, and the opportunity for shared ownership in the wind farm itself.

## **Why are people's comments required on the proposal?**

Vattenfall believes that the engagement and consultation process is vital to ensuring that those communities and stakeholders potentially affected by the proposal have the opportunity to comment on and influence the development in a meaningful way. We consciously started the consultation as early as possible to try and involve people at an early stage in the project and communicate our intentions as widely as possible.

People's thoughts, views and ideas can help us understand what matters to them and their communities, and how we can develop the best proposal possible. The comments that we receive from the community, together with site survey work and key stakeholder feedback, will help to develop and refine the design over the coming months.

## **Is there any more consultation planned?**

We are planning to hold an 'update' exhibition later in 2021 to seek feedback on the updated design, as well as a further exhibition around submission in order to present the final design. Outwith these events we would encourage people to get in touch if they have comments or questions about the proposal by using the contact details at the end of this document.

## **How do I keep up to date with the project?**

We will be keeping people up to date with the project through our project website at [www.vattenfall.co.uk/musdale](http://www.vattenfall.co.uk/musdale), our project newsletter (which will be mailed out to local households and is also accessible from the project website), and by engaging with the local Community Councils. We will also be placing adverts in the local paper to raise awareness of future consultation events.

Vattenfall is committed to a comprehensive programme of communication and the methods we've used are designed to reach as many people in the community as possible. We have also sought advice from some of the local Community Councils. Notwithstanding this, it is possible that information about our proposal will not have reached all members of the local communities, and we welcome suggestions as to how we can improve our communication or consultation techniques. If you have any suggestions, please get in touch with the Musdale project team using the contact details at the end of this document.

We have been unable to get 'out on the ground' in the community as we would usually do due to Covid-19, however, face-to-face engagement will commence once it is safe and appropriate to do so.

## **Do you share the results of your consultations?**

Vattenfall regularly provides feedback to the communities it works with. In addition, at the end of the development stage of the project we will produce a Pre-Application Consultation (PAC) report which will explain the consultation undertaken and summarise the feedback received. This report will accompany any planning application submission. In addition, we will be sharing some of the findings from our consultations with local Community Councils, on our project website, and through our project newsletter in order to keep people informed and up to date.



# Landscape and visual

## How will the site be designed from a landscape and visual perspective?

One of the key strengths of the site at Musdale is the surrounding landform which helps contain the extent of visibility across the wider area. The hills and ridgelines within the site create an enclosed landform which has a notable influence on containing the extent of visibility across the wider area. The greatest visibility occurs within the first 5km from the site, with some localised patches of visibility within a 10km radius such as on the west facing slopes to the east of Loch Awe.

How the site looks in the landscape is of huge importance to the project team. Over the coming months, Vattenfall will be working very closely with specialised landscape architects as part of the 'Environmental Impact Assessment' (EIA) work to critically assess the visual impact and ensure that key design objectives are achieved.

## How will the site look within the local area?

Whilst the project is at an early stage of development, we have produced a few wirelines from viewpoints in the area (as part of the initial online exhibition and consultation) to try and start giving an impression of what the site may look like at this early stage.

These wirelines are based on the 26-turbine 'scoping' layout and can be found on the project website at [www.vattenfall.co.uk/musdale](http://www.vattenfall.co.uk/musdale) within the online exhibition area. Hard copies can be obtained by getting in touch with the Musdale project team using the contact details at the end of this document.

Further wirelines and visualisations will be provided at our next public exhibition which will be held later in 2021. These will be based on an updated design and turbine layout.

## Why are turbines getting taller?

The turbines proposed for Musdale Wind Farm could be up to a maximum of 200m to tip height. Evolving technology means that turbines are becoming taller and much more efficient, resulting in the ability to generate much more electricity from the wind using fewer turbines.

## What about cumulative impacts with other nearby wind farms?

Cumulative issues with other wind farms are an important consideration of the design strategy for the site, particularly with regard to landscape and visual impact due to the relative proximity of the other wind farms that are operational.

Musdale is located adjacent (north west) of the operational 24-turbine Carraig Gheal Wind Farm (112-127m height in blade tip), and approximately 780m south west of the 14-turbine operational Beinn Ghlas Wind Farm (61m height in blade tip). In addition, the operational 23-turbine An Suidhe Wind Farm (80m height in blade tip) lies within 10-15 kilometres of the site in addition to the proposed Blairghour Wind Farm.

The cumulative impact on built and natural heritage needs to be carefully considered to ensure that these are acceptable. All assessments that form part of the EIA have regard to the potential cumulative effects upon the environment.



Edinbane Wind Farm



## Ecology and ornithology

### **How will you minimise impacts on local habitats, wildlife and biodiversity?**

One of the main pieces of work that Vattenfall is currently undertaking as part of the design development process is the 'Environmental Impact Assessment' (EIA). The extensive surveys and studies associated with this work will take many months and look at a wide range of topic areas including: landscape and visual; ornithology, ecology and fisheries; cultural heritage; noise; hydrology, hydrogeology and peat; access, traffic and transport; and forestry. The findings will ensure that Vattenfall has a thorough understanding of the site and that the project is developed in a way that protects local habitats and wildlife and minimises any impacts.

The environment – including the birdlife and wildlife on and near our wind farm projects – is important to us too and we are working with an experienced team for the Musdale proposal who will be looking at developing a Habitat Management Plan focusing on biodiversity improvements for species relevant to the local area.

Biodiversity and protecting nature is a key priority at Vattenfall. It is one of the focus areas in our Environmental Policy and therefore also a central part of our environmental work. Over the last five years, Vattenfall has invested in a number of environmental research programmes across Europe. The programmes all focus on addressing key knowledge gaps vital for future deployment of fossil free electricity, or furthering understanding critical to minimising impacts on species during construction and operation of wind energy. You can find out more by visiting the Vattenfall website under the 'Who we are' heading, followed by 'Sustainability' and then 'Environmental responsibility' – or by getting in touch with the Musdale project team using the contact details at the end of this document.

### **Do we lose the EU environment and wildlife protection laws now that the UK has left the EU?**

No, the majority of protections in place for European Protected Species still stand as they are entrenched in Scottish law. You can find more information about this on NatureScot's (formerly Scottish Natural Heritage) website at [www.nature.scot/eu-exit-brexite-information](http://www.nature.scot/eu-exit-brexite-information).

### **Will the project affect peat on the site?**

As part of the EIA work a peat survey will be undertaken to identify the areas of deep peat on site. This often involves peat core samples being taken throughout the site to ensure that tracks and turbine locations avoid areas of deep peat wherever possible. A peat management plan would also be submitted as part of any planning submission – detailing how any peat excavation would be handled in order to retain and protect the integrity of the peat and avoid degradation. Peat management skills, techniques and knowledge on wind farm sites have improved considerably over the years.

### **How will you protect key bird species in the area?**

The EIA survey and assessment work currently being undertaken at Musdale is rigorous and is in line with the guidance set out by NatureScot. A range of bird surveys have been undertaken to record bird activity and how birds use the area in and around the site. These include Vantage Point (VP) surveys (from 5 VPs designed to give good visibility of the development area), Breeding Raptor surveys, Moorland Breeding Bird surveys, Breeding Diver surveys and Black Grouse surveys. The surveys entail many hours of survey effort over a significant period of time and will enable a detailed assessment to take place, particularly with respect to the raptor species in the area.



## Cultural heritage

### **Will the historic Midmuir drovers path, which runs through the site, be affected?**

It's too early to say at this stage. However, we are aware of the popularity of this path locally with walkers and cyclists in terms of access and recreation, as well as its cultural significance as a historical drove road, and this will be taken into consideration when we start the site access design work later in 2021.

### **How much protection will be given to the Scheduled Cairn (SM1497)?**

Our Archaeology and Cultural Heritage surveys are currently underway, and we will have more information on this in due course.



Surveyor at Vattenfall wind farm site



# Tourism

## Do people like wind farms?

People's perceptions of wind farms are very subjective, and a matter of personal taste. Some people like them, others don't. A March 2019 UK Government poll by the Department of Business, Energy and Industrial Strategy (BEIS) titled 'BEIS Public Attitudes Tracker (Wave 29)' confirmed that support for onshore wind was at its highest level since the survey started in 2012, showing support for onshore wind at 79%.

## Do wind farms affect tourism?

There have been a number of independent studies carried out to understand people's attitudes to wind farms and their effect on tourism. These studies have consistently found that wind farms do not impact tourism. One of the most relevant studies with regard to Scotland was a study undertaken by independent consultancy, BIGGAR Economics, in 2017 titled 'Wind Farms and Tourism Trends in Scotland'. The study included analysis of local tourism trends within a 15km radius of 28 different wind farm sites, constructed between 2009 and 2015 and came to the conclusion that *"there was no relationship between the growth in the number of wind turbines and the level of tourism employment at the local authority level."*

In addition, it concluded that *"It would be reasonable to expect that any impacts associated with a wind farm development are most likely to be felt strongest in the immediate vicinity of the development. An analysis of the levels of employment in the sustainable tourism sector in the immediate vicinity of onshore wind farm developments did not find any evidence of these areas being adversely affected. On the contrary it was found that the tourism sector in the majority of areas surrounding wind farms grew faster than in the local authorities where they were situated. Although this study does not suggest that there is any direct relationship between tourism sector growth and wind farm development, it does show that **wind farms do not cause a decrease in tourism employment** either at a local or a national level."*





## Traffic and transport

### How will construction traffic access the site?

There are two potential route options being explored for construction traffic accessing the Musdale site - a northern access and a southern access route. The northern route involves turning off the A85, near Taynuilt, and heading south through Fearnoch forest to site. The southern route involves turning off the A816, approximately 6km north of Kilmartin, onto the West Loch Awe Timber Haul Route (WLATHR) whereupon the route would then travel north-east for approximately 20km before reaching the site.

### Will there be traffic disruption during the construction of Musdale Wind Farm?

The two proposed access routes will be carefully assessed as part of the EIA work being undertaken over the coming months, and Vattenfall will seek to design the project in a way that minimises any potential disruption from construction traffic. The sort of things that we will be looking at are peak traffic times (such as school drop-off and pick up) as well as a swept-path analysis along the proposed access routes to ensure that there is enough room for the longer Abnormal Indivisible Loads (AILs - which transport the longer turbine components) to manoeuvre safely along these routes.

### How will the community be kept up to date during the construction of Musdale Wind Farm?

Should the proposal be given consent, Vattenfall will undertake a more detailed Traffic Management Plan which would be agreed with Argyll and Bute Council's roads department and also with the police before construction work started.

In addition, we would look to set up a Community Liaison Group (CLG) in order to engage with the local community and provide a regular dialogue in order to keep people up to date during the construction and ensure that any issues can be addressed at the earliest opportunity. As part of this CLG we would discuss and agree the methods which we intend to use to keep the local community informed during construction (i.e. project website, projects newsletters, local posters, information on social media, etc).

Vattenfall has won awards for the approach taken to the construction of its wind farms in Scotland and across the UK, with the most recent being a Gold at the Considerate Constructors Awards in 2016 for Pen y Cymoedd Wind Farm in Wales, which became operational in 2017. The Gold award highlighted that: in relation to community engagement "*significant engagement with the local community throughout the project has been continually surpassed*"; in relation to workforce safety "*exceptional measures in place when considering the safety and welfare of the workforce*"; and, in relation to protecting the environment "*Site inductions, supplemented by toolbox talks, reinforce an awareness of specific environmental issues among the workforce*".



Turbine deliveries at Vattenfall wind farm site



## Grid connection

### **What route will the grid connection take to connect into the national grid network?**

We don't have much detail on this just now due to the early design stage of the project as well as the fact that the grid connection route is determined by the network operator (rather than Vattenfall). Initial discussions suggest that the grid line may run east from the site rather than west, although this can't be guaranteed at this stage. We should have more information on this later in 2021.

### **Will pylons be required?**

This is highly unlikely as it is an expensive option for the network operator. It is expected that the power from the wind farm would be carried out from the site on wood pole lines or routed underground.



## Aviation

### **Will Musdale Wind Farm affect aviation activity in the area?**

Aviation safety is something that must not be compromised by the building of a wind farm, so extensive consultation will be undertaken with the Ministry of Defence, Civil Aviation Authority and NATS En Route Plc to ensure that a wind farm in this location would not affect the safe running of radar facilities and Air Traffic Control services.

### **Will the turbines require aviation lighting?**

Because the turbines at Musdale would be over 150m, the Civil Aviation Authority would require visible aviation lights on the nacelles of the turbines. An Aviation Lighting Assessment will be carried out by aviation experts as part of the Environmental Impact Assessment (EIA) work to determine if all the turbines are required to be lit or whether the number of lights required can be reduced. The final Lighting Assessment would need to be agreed with the Civil Aviation Authority.

### **What impact will aviation lighting have on the local area?**

We're not sure yet. The site design needs to be developed further and we also need to understand the number of turbines that would need to be lit and the level of lighting required before the impacts can be properly assessed.

It is worth noting that Aviation lighting is often low intensity lighting (i.e. around 200 candela), sometimes red lighting rather than white lighting and occasionally infra-red (which is invisible to the naked eye), as well as the fact that sometimes only 'cardinal' turbines (i.e. one turbine in the north, one in the south, one in the east and one in the west) require to be lit. We'll have further information on aviation lighting as the project progresses. Ultimately, we'll be looking to minimise any impacts as much as possible whilst also ensuring that we meet the aviation industry's safety requirements.



## House prices

### **Do wind farms affect house prices?**

A report published in March 2007 by the Royal Institute of Chartered Surveyors (RICS) and Oxford Brookes University, titled 'What is the impact of wind farms on house prices' found that house price fluctuations were more likely to be caused by factors other than wind farms.



## Constraint payments

### **What are constraint payments?**

As part of their role to balance the electricity system on a second by second basis, the electricity system operator (National Grid ESO) will instruct electricity generators (power stations and wind farms) to increase or decrease electricity generation. This is a normal part of our market system and keeps the system in balance, ensuring that electricity can flow to homes and businesses in the most efficient way. This arrangement existed long before wind farms were connected to the grid, and National Grid ESO is incentivised by Ofgem to ensure it is carried out in the most cost-effective way.

It has been reported that less than 10% of all constraint payments are made to wind farms [DECC 'Onshore Wind Farm FAQs']. Most constraint payments are made to conventional generators such as coal and gas.

Vattenfall is investing in battery storage technology at some of its sites, storing electricity when there is surplus and discharging it into the grid when more is required – which will make it easier to help balance the grid as more renewable generation comes online. For example, our 22MW battery at Pen y Cymoedd Wind Farm in Wales has the ability to store renewable electricity and release it to the grid when it is needed. Battery storage is also proposed for Musdale.



## Foreign ownership

### **Why should Vattenfall, a Swedish company, be allowed to build wind farms here?**

Over the last few decades the UK energy market has been transformed by the privatisation for the electricity and gas industries. Unlike the rest of Europe, the UK utilities were opened up to foreign ownership in the 1990's and since that time a number of the largest UK energy companies have been taken over by other European companies. For example, Glasgow-based Scottish Power is owned by the Spanish energy company Iberdrola, n-power is part of the German gas and electricity company E.ON, and EDF Energy is a French-owned company.

Over the last decade, we've had an extensive presence in the UK. We have grown our own wind business from one project in 2008 to 11 today, investing more than £3.5 billion in the UK and enough wind to power 700,000 homes, and we continue to grow in district heating and power networks to make fossil free living possible within one generation.

## Shadow flicker

### **What is shadow flicker?**

Shadow flicker is the effect caused when rotating wind turbine blades periodically cast shadows through narrow openings such as windows in neighbouring buildings. There are a range of factors, which can impact on the extent and frequency of shadow flicker, including the location of the building relative to the turbine, the weather conditions – especially wind direction and position of the sun, topography and turbine height and blade rotor diameter.

An independent study published in March 2011 by the Department of Energy and Climate Change (DECC), now the Department for Business, Energy and Industrial Strategy (BEIS), on shadow flicker titled 'Update of UK Shadow Flicker Evidence Base' concluded that there have not been extensive issues with shadow flicker in the UK and in the few cases where problems have arisen they have been resolved effectively.

We do not expect shadow flicker to be an issue at Musdale due to the distance of the turbines from residential properties.

## Noise

### **What about wind farm noise?**

Noise is a concern often raised by members of the public. However, DECC's 'Onshore Wind FAQs' explain that modern wind turbines produce very little noise: *"The noise level of a wind farm at a distance of 250m (1150ft) is comparable to the sound of leaves rustling in a general breeze (approximately 35-45 decibels). A car travelling at 40mph at a distance of 100m (330ft) creates around 55 decibels of noise"*.

Background noise will be measured over the coming months in various locations in the vicinity of the proposed wind farm and data from this work will be used to ensure turbines are positioned far enough away from residential properties to ensure that noise conforms to DTI and ETSU requirements.

Noise impact is considered within the planning process before any decision is taken about whether or not to grant consent to construct a wind farm, however, we do not expect noise to be an issue at Musdale due to the distance of the turbines from residential properties.

# Carbon footprint

## What will the carbon footprint be for Musdale Wind Farm?

Electricity generated from wind farms has one of the lowest carbon footprints compared to other forms of electricity generation. As with other low carbon technologies, nearly all of the emissions occur during the manufacturing and construction phases, arising from the production of steel for the tower, concrete for the foundations and epoxy/fibreglass for the rotor blades. Evidence suggests that the average energy payback time for a wind farm is in the region of 3-6 months.

Once we have completed the EIA work for Musdale and finalised the design we will be able to calculate the carbon footprint of the site and this information will be included in the Environmental Statement which will accompany any planning application submission.

## How much electricity will the site generate?

Due to the excellent wind resource that the site has - if Musdale Wind Farm proposal was consented it would generate approximately 425,500MWh (megawatt-hours) each year, based on the scoping layout of 26 x 6MW (megawatt) turbines, which is enough electricity to power the equivalent of approximately 118,000 homes.

## Can turbine components be recycled?

The operational life of most turbines is around 25-30 years. Most of the turbine components and parts can be recycled with the exception of the blades which are made from composite materials such as glass or carbon fibre. These materials are difficult to recycle but there are moves towards improving recycling techniques, as well as initiatives looking into the use of different materials which have similar properties (i.e. lightweight yet suitably strong) but which are able to be recycled more easily.

## Contact details

If you have further questions or would like further information, please get in touch by calling 01434 611300, emailing us at [musdalewindfarm@vattenfall.com](mailto:musdalewindfarm@vattenfall.com) or by writing to the Musdale Project Team at the address shown on the bottom left of this page.