Introduction

Welcome and thank you for visiting this virtual public exhibition for Kennoxhead Wind Farm Extension II (Penbreck).

In normal circumstances, we would engage with communities face-to-face through drop-in public exhibitions, however, given current social distancing restrictions this is not possible. Therefore, we have prepared this consultation material to replicate a village hall experience.

Through this virtual consultation, you will have the opportunity to:

- **Learn about Brookfield Renewable UK Limited (BRUK);**
- **Learn about the project background;**
- **Read about the proposals;**
- **Learn about the community benefits;**
- **Read about the Environmental Impact Assessment (EIA) and work undertaken to date;**
- **View project visualisations illustrating the wind farm; and**
- **Learn about the proposed next steps and how you can provide feedback.**

There will also be the opportunity to download project information throughout, including maps and figures.

This consultation will run for two weeks between 7th December and 21st December 2020. However, the information will remain accessible online.

We hope you enjoy your visit and we would encourage you to get in contact should you wish to discuss the project further or have any questions.

About us

Brookfield Renewable UK Limited (BRUK) is developing Kennoxhead Wind Farm Extension II (Penbreck). We have an office in Edinburgh with a team of specialist staff focused on the acquisition and development of suitable onshore wind energy sites throughout the UK. BRUK has over 170 megawatts (MW) of permitted capacity with a further 39MW in planning, and a pipeline in excess of 250MW.

BRUK has a long-term commitment to move forward with its wind development pipeline in Scotland, and we want to make a positive contribution towards government climate change targets. BRUK is also committed to ensuring that developments bring forward initiatives to support long-term economic opportunities and benefits for local areas. You can read more about community benefits proposed for Kennoxhead Wind Farm Extension II in **Board 6.**

Kennoxhead and Penbreck forestry from Cairn Table

Site Context and Planning Background

Kennoxhead Wind Farm Extension II (Penbreck) is a re-design of the consented but un-built Penbreck Wind Farm, and is located on the same site, south-west of Glespin and south-east of Muirkirk. The site is adjacent to BRUK's under construction Kennoxhead Wind Farm and proposed Kennoxhead Wind Farm Extension.

BRUK currently has planning permission from South Lanarkshire Council and East Ayrshire Council for Penbreck Wind Farm, allowing the construction and operation of 9 turbines (and supporting infrastructure) of up to 145m to blade tip (total generation capacity of 30.8MW) on the site. The planning permission allows Penbreck Wind Farm to operate for 25 years.

BRUK also has consent to construct and operate Kennoxhead Wind Farm, comprising 19 turbines (and supporting infrastructure) of up to 180m to blade tip (total generation capacity of 91.2MW). Kennoxhead Wind Farm is currently in the early stages of construction, and is anticipated to be fully operational by the end of 2023. The consent allows the wind farm to operate for 25 years.

In March 2020, BRUK also applied to the Scottish Ministers for consent to construct and operate Kennoxhead Wind Farm Extension, comprising 8 wind turbines (and supporting infrastructure) of up to 180m to blade tip (total generation capacity of 38.4MW). The application is yet to be determined, but if successful the consent will allow the wind farm to operate for 30 years, with construction starting in 2022.

A map showing the current consented turbine layouts for Penbeck Wind Farm and Kennoxhead Wind Farm, and the application layout for Kennoxhead Wind Farm Extension can be viewed on **Figure 1.**

Kennoxhead Wind Farm Extension II (Penbreck)
Figure 1

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Proposals for Kennoxhead Wind Farm Extension II

Kennoxhead Wind Farm Extension II (Penbreck) is a re-design of the consented Penbreck Wind Farm (**see Figure 2**). Should Kennoxhead Wind Farm Extension II (Penbreck) be consented, this would replace the consented Penbreck Wind Farm.

The proposal is being brought forward increase the efficiency of the consented Penbreck site, and this involves amending the design by reducing the number of turbines, relocating the turbines and increasing the tip heights. This will bring about significant efficiency improvements, by being able to use the newest wind turbine technology and capturing the greater wind resource at increased heights. The re-design has provided the opportunity to rename Penbreck Wind Farm to Kennoxhead Wind Farm Extension II (Penbreck), in-line with the adjacent schemes.

	Consented Penbreck	Proposed Re-design
Number of Turbines	9	8
Turbine Tip Height	145 m	220 / 200 m
Turbine Capacity	3 – 3.6 MW	5.7 MW
Total Capacity	27 – 30.8 MW	45.6 MW
UK Homes Powered*	19,600 – 23,500	33,100
Carbon Dioxide offset per year**	32,000 – 38,000 tonnes	54,000 tonnes

*Based on DECC and Digest of UK Energy Statistics (DUKES) figures, which assume average UK household electrical consumption of 3,618 KWh and indicative capacity factor of 30%, In reality the larger turbines will have an increased capacity factor.

** Uses BEIS's "all fossil fuels" emissions statistic of 446 tonnes of carbon dioxide per GWh of electricity supplied in the Digest of UK Energy Statistics (July 2020) p95 Table 5E

The consented Penbreck Wind Farm along with elements of Kennoxhead Wind Farm and Kennoxhead Wind Farm Extension are proposed to be connected to the National Grid via a wooden pole overhead line to the Coalburn substation. Should the Kennoxhead Extension II (Penbreck) be consented the grid connection will remain in line with this, replacing the Penbreck Wind Farm element of the connection. This grid connection is subject to a separate consenting process which is managed by Scottish Power Energy Networks for which further details can be found here (https://www.spenergynetworks.co.uk/pages/kennoxhead_wind_farm_grid_connection.aspx).

Kennoxhead Wind Farm Extension II (Penbreck)
Figure 2

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Proposals for Kennoxhead Wind Farm Extension II

Extension II (Penbreck) will comprise the following components:

- Up to 8 turbines of up to 220m tip height with night-time aviation lights (total capacity of 45.6MW);
- Turbine foundations, crane hardstanding and transformers;
- Additional new/upgraded stone tracks giving access to the site and to turbine bases and other infrastructure;
- Power cables linking the turbines, laid underground in trenches along access tracks;
- Forestry felling to accommodate proposed infrastructure and a long-term forest management plan;
- Borrow pits for sourcing stone for tracks and crane hardstandings;
- A steel lattice tower anemometer mast for wind turbine performance monitoring; and
- Temporary site construction compounds and associated infrastructure.

Figure 3 shows the proposed Kennoxhead Wind Farm Extension II (Penbreck) layout in context with the consented turbine layouts for Kennoxhead Wind Farm and the proposed layout for Kennoxhead Wind Farm Extension. At this stage, other site infrastructure is still to be designed for Kennoxhead Wind Farm Extension II (Penbreck), and infrastructure for Kennoxhead and Kennoxhead Extension, whilst not shown, is fully designed (see links to EIA Reports on **Board 12**)

Typical existing track within the Kennoxhead Wind Farm Extension II (Penbreck) site

Current consented turbine layouts for Kennoxhead Wind Farm and the application layout for Kennoxhead Wind Farm Extension and the proposed Kennoxhead Wind Farm Extension II (Penbreck)

Kennoxhead Wind Farm Extension II (Penbreck)

- Kennoxhead Wind Farm Extension II (Penbreck) turbine location
- Kennoxhead Wind Farm Extension II (Penbreck) site boundary

Consented Kennoxhead Wind Farm

- Kennoxhead Wind Farm turbine location
- Kennoxhead Wind Farm site boundary

Proposed Kennoxhead Wind Farm Extension

- Kennoxhead Wind Farm Extension turbine location
- Kennoxhead Wind Farm Extension site boundary

0 0.5 1 km

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Kennoxhead Wind Farm Extension II (Penbreck)
Figure 3

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Proposals for Kennoxhead Wind Farm Extension II

Access to Site

The delivery route for abnormal load vehicles carrying turbine components is anticipated to be from the King George V Docks in Glasgow to the site. The route will follow the M74 southwards before exiting at Junction 13 (Abington services), and then join the B7078 and continue north-west for approximately 7.5km before reaching an existing junction which turns left onto the former Scottish Coal Conveyor route (Mid Rig access) followed by Glentaggart Road, leading to the site. It is proposed that all abnormal load vehicles and the majority of heavy goods vehicles (HGVs) (approximately 80%) will enter the site at this point (as proposed for the Kennoxhead Wind Farm and Extension). It is anticipated that the remaining 20% of HGV construction traffic will enter the site off the A70 (approximately 800m west of Glespin) at the entrance to the former Glentaggart opencast mine.

A Construction Traffic Management Plan (CTMP) will be agreed in consultation with the South Lanarkshire Council to manage traffic movements prior to construction commencing. The CTMP will identify measures to reduce the number of construction vehicles as well as identifying measures to mitigate the impact of vehicles on the local road network.

Construction Programme

Construction of Kennoxhead Wind Farm Extension II (Penbreck) will take approximately 12 months, and should it gain consent construction would commence in late 2022 in parallel with Kennoxhead Wind Farm Extension and the ongoing construction works for Kennoxhead Wind Farm.

Community Benefits

BRUK is committed to delivering local benefits. We work closely with the communities closest to our wind farm sites to ensure that we can help bring forward and support sustainable, long-term community initiatives.

Kennoxhead Wind Farm Extension II (Penbreck), combined with Kennoxhead Wind Farm and Kennoxhead Wind Farm Extension, will deliver significant economic benefits locally. These will include:

- Creating opportunities for local businesses during the construction period; and
- Bringing additional spend to the area during the construction process.

A number of local plant operatives have already been added to the construction team at Kennoxhead Wind Farm, with more likely in coming months.

The project will provide £5,000 per megawatt of community benefit. This could be up to £228,000 each year that the wind farm is operational, in addition to the equivalent benefit funds for Kennoxhead and Kennoxhead Extension. Across the Kennoxhead cluster this could lead to up to £876,000 in community benefits annually.

This can support a variety of projects including:

- **Education and skills;**
- **Safety and well-being;**
- **Environment;**
- **Energy;**
- **Infrastructure;**
- **Culture and heritage;**
- **Recreation;**
- **Sport; and**
- **Social inclusion.**

BRUK is aware that Memorandums of Understanding are in place for the community benefit associated with the consented Penbreck Wind Farm proposals. We are exploring opportunities to ensure that the settlements closest to Penbreck Wind Farm continue to benefit from the proposals. We hope to be holding further discussions regarding this as our plans progress.

Climate Emergency

The impacts of climate change are widely recognised as being one of the greatest global economic, environmental and social challenges facing the world today. A major cause of climate change is a rise in the concentration and volume of greenhouse gases in the atmosphere, a significant contributor to which, is the use of fossil fuels to generate electricity, provide heat and to fuel transport. One of the primary aims of the UK and Scottish Governments is to move the UK towards a low carbon economy. This relates to all sectors of business and industry and all policy frameworks that affect the general public.

Like the UK Government, the Scottish Government declared a climate emergency in April 2019 and set out to achieve net-zero emissions target for 2045, five years ahead of the UK Government. This is now enshrined in law and developments such as Kennoxhead Extension II (Penbreck) are key to meeting these targets.

Whilst Scotland has continued to make good progress over the years in reducing its greenhouse gas emissions (emissions fell by 31% from 2008 to 2018), emissions rose by 2% in 2018. The need for low carbon energy supplies has therefore never been more paramount if Scotland is to achieve its net zero target.

The Scottish Energy Strategy, which calls for a 50% 'all energy' from renewables target by 2030, emphasises that onshore wind is now one of the cheapest forms of electricity and will therefore continue to play an important role in realising the Scottish Government's Climate Change ambitions. Scottish energy and climate change goals mean that onshore wind is vital to Scotland's future, and will help to decarbonise our electricity, heat and transport systems, boosting our economy, and meeting local and national demand.

Kennoxhead Wind Farm Extension II (Penbreck) will generate electricity from a renewable source of energy, offsetting the need for electrical generation from the combustion of fossil fuels and to add capacity to the electrical generating potential to facilitate a decarbonisation of heat and transport networks. Consequently, the electricity that will be produced will result in a saving in emissions of carbon dioxide (CO_2) with associated environmental benefit (see table on **Board 5**).

Environmental Impact Assessment

Environmental Impact Assessment (EIA) is the process of identifying, assessing and presenting the likely significant environmental effects of a development proposal to inform sound decision making. Having an understanding of the significant effects as information emerges through the EIA process, allows for early action to be taken to avoid these effects as part of the project's design. The assessment of effects also allows for the identification of other specific mitigation measures required to reduce or offset any significant effects on the environment.

Given that there is potential for the construction and operation of Kennoxhead Wind Farm Extension II (Penbreck) to result in significant effects on the environment, an EIA is being undertaken. The findings of the EIA will be presented in an EIA Report which will be submitted with the application for consent. EIA Reports have already been prepared to accompany the Kennoxhead Wind Farm and Kennoxhead Wind Farm Extension applications, and these can be viewed here (https://kennoxheadwind.co.uk/resources/).

To date, BRUK has prepared an EIA Scoping Report for Kennoxhead Wind Farm Extension II (Penbreck), the purpose of which has been to ensure that the EIA focusses on the key environmental issues for the site. The Scoping Report also provided details of the proposed approach to each technical assessment and the findings of desk/field surveys undertaken to date. The Scoping Report was issued to the Scottish Government Energy Consents Unit (ECU) and was distributed to a number of statutory and non-statutory consultees for comment to inform the Scoping Opinion. Both the Scoping Report and Scoping Opinion can be found here (https://kennoxheadwind.co.uk/resources/).

Environmental Impact Assessment

The completed EIA will assess the potential effects of Kennoxhead Wind Farm Extension II (Penbreck) for a wide range of technical and environmental topics, and these will include:

Landscape and Visual Amenity
(including effects on landscape character and views from viewpoints, settlements and routes)

Hydrology
(including peat and a private water supplies assessment)

Noise
(both construction and operational noise in combination with other nearby wind farms)

Traffic and Transport
(including effects on the local public road network in combination with Kennoxhead and Kennoxhead Extension)

Ecology
(protected species and sensitive habitats) and Ornithology (birds of conservation value)

Cultural Heritage and Archaeology
(including direct effects on assets on the site and wider region)

Socio-Economics, Tourism and Recreation
(including employment and economic benefits)

Climate Change
(including contribution to climate change mitigation)

The EIA Report will be available for viewing on the BRUK website as well as the ECU website and South Lanarkshire Council online planning portal. During the consultation period, the ECU will invite comments on the content of the EIA Report from statutory and non-statutory consultees, including South Lanarkshire Council, SEPA, NatureScot (formerly SNH), East Ayrshire Council, Dumfries and Galloway Council and local community councils before deciding the application. Members of the public will also be able to make representations to the ECU, and information on how to do this will be advertised in the local press, the ECU website and the BRUK website.

Project Visualisations

Experienced landscape consultants have been tasked with helping us create a carefully designed wind farm to be compatible with the surrounding landscapes and the adjacent wind farms. An objective approach, which follows recognised guidance methods, is used to minimise any potential effects on the surrounding landscape and visual resource, and on the people who experience these views.

A comprehensive landscape and visual assessment is being prepared, which includes visualisations from viewpoints around the project. These visualisations will help shape and inform the ongoing design of the layout. A selection of visualisations from representative viewpoints are on display as part of this exhibition.

To show the difference between the extent of the visibility of Kennoxhead Wind Farm Extension II and the consented Penbreck Wind Farm, a Zone of Theoretical Visibility (ZTV) map has been prepared, and this can be viewed on **Figure 4**. The ZTV indicates in blue where the proposed Kennoxhead Wind Farm Extension II (Penbreck) introduces additional visibility to that of Penbreck Wind Farm, with this additional visibility being limited.

Comparative photomontages have also been prepared for the four assessment viewpoints below. These show how

Scenario 1:	Kennoxhead Wind Farm, Kennoxhead Wind Farm Extension and Penbreck

differs from

Scenario 2:	Kennoxhead Wind Farm, Kennoxhead Wind Farm Extension and Kennoxhead Wind Farm Extension II (Penbreck)

and how

Kennoxhead Wind Farm Extension II (Penbreck) will appear in context with Kennoxhead Wind Farm and Kennoxhead Wind Farm Extension if consented.

An additional ZTV **(Figure 5)** has also been prepared to accompany the photomontages, and this shows the change to the extent of visibility between Scenario 1 and Scenario 2.

- **Viewpoint 1: Cairn Table**
- **Viewpoint 2: A70 west of Douglas**
- **Viewpoint 3: B7078 / National Cycle Network Route 74**
- **Viewpoint 4: Smallburn**

Comparative Zone of Theoretical Visibility (ZTV) showing Penbreck Wind Farm and Kennoxhead Wind Farm Extension II (Penbreck)

Kennoxhead Wind Farm Extension II (Penbreck)

- Kennoxhead Wind Farm Extension II (Penbreck) site boundary
- Kennoxhead Wind Farm Extension II (Penbreck) turbine location
- 5km intervals from outer turbines

Consented Penbreck Wind Farm

- Penbreck Wind Farm turbine location

Visibility (Tip Height)

- Consented Penbreck Wind Farm only visible
- Kennoxhead Wind Farm Extension II (Penbreck) only visible
- Both consented Penbreck Wind Farm and Kennoxhead Wind Farm Extension II (Penbreck) visible

Viewpoint location

1: Cairn Table
2: A70 west of Douglas
3: B7078 / NCN Route 74
4: Smallburn

Wind Farm Turbine Tip Heights
Consented Penbreck Wind Farm (145m to tip)
Kennoxhead Wind Farm Extension II (Penbreck) (T1 - 7 220m, T8 200m to tip)

Notes:
The ZTV is calculated to turbine tip height from a viewing height of 2m above ground level.

The terrain model assumes bare ground and is derived from OS Terrain 50 height data (obtained from Ordnance Survey 2019).

Earth curvature and atmospheric refraction have been taken into account. The ZTV was calculated using ArcMap 10.5.1.

Kennoxhead Wind Farm Extension II (Penbreck)
Figure 4

Brookfield LUC

Comparative Zone of Theoretical Visibility showing Scenario 1 and Scenario 2

Kennoxhead Wind Farm Extension II (Penbreck)

- Kennoxhead Wind Farm Extension II (Penbreck) site boundary
- Kennoxhead Wind Farm Extension II (Penbreck) turbine location
- 5km intervals from outer turbines

Consented Penbreck Wind Farm

- Penbreck Wind Farm turbine location

Consented Kennoxhead Wind Farm

- Kennoxhead Wind Farm turbine location

Proposed Kennoxhead Wind Farm Extension

- Kennoxhead Wind Farm Extension turbine location

Comparative Zone of Theoretical Visibility (ZTV) showing Scenario 1 and Scenario 2 and Viewpoint Locations

Visibility (Tip Height)

- **Scenario 1:** Areas where there would be reduced visibility from the re-design
- **Scenario 2:** Areas where there will be additional visibility from the re-design
- **Scenario 1 and 2:** Areas where both scenarios are visible
- **Viewpoint location**

1: Cairn Table
2: A70 west of Douglas
3: B7078 / NCN Route 74
4: Smallburn

Wind Farm Turbine Tip Heights
Scenario 1:
Kennoxhead Wind Farm consented (180m to tip), Kennoxhead Wind Farm Extension proposed (180m to tip) + Penbreck Wind Farm consented (145m to tip)

Scenario 2:
Kennoxhead Wind Farm consented (180m to tip), Kennoxhead Wind Farm Extension proposed (180m to tip) + Kennoxhead Wind Farm Extension II (Penbreck) (T1 - 7 220m, T8 200m to tip)

Notes:
The ZTV is calculated to turbine tip height from a viewing height of 2m above ground level.

The terrain model assumes bare ground and is derived from OS Terrain 50 height data (obtained from Ordnance Survey 2019).

Earth curvature and atmospheric refraction have been taken into account. The ZTV was calculated using ArcMap 10.5.1.

Kennoxhead Wind Farm Extension II (Penbreck)
Figure 5

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Next Steps and Feedback

The table below sets out the next steps proposed for the Kennoxhead Wind Farm Extension II (Penbreck) project and indicative timescales.

1	**Public Consultation**	**Now until 21st December 2020**
2	**Completion of EIA and EIA Report**	**Now until mid-February 2021**
3	**Submission of Section 36 Application**	**Mid-February 2021**
4	**Application consultation and determination of application**	**Mid-February 2021 until End 2021**
5	**Discharge of planning conditions (if consented)**	**End 2021-Autumn 2022**
6	**Construction (if consented)**	**Autumn 2022-Autumn 2023**

BRUK value your feedback to this public consultation and your thoughts about the proposals. We would be grateful if you could spare five minutes to complete our questionnaire which can be found here (https://www.surveymonkey.co.uk/r/G52CKNJ).

Thank you for taking the time to visit this virtual exhibition.