

Onshore Wind Policy Statement 2022



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Ministerial Foreword



The world is facing a climate emergency with the impacts of climate change already being felt across the globe. From floods in Pakistan to drought across Europe and last winter's serious storms, the damage that unmitigated climate change can cause is already clear to see.

Russia's illegal invasion of Ukraine and the resulting extraordinary rise in the price of fossil fuels, in particular gas, demonstrates that continuing to rely on commodities that are subject to global price shocks is no longer an option.

That is why we must accelerate our transition towards a net zero society. Scotland already has some of the most ambitious targets in the world to meet net zero but we must go further and faster to protect future generations from the spectre of irreversible climate damage.

We are at a crucial juncture in energy policy at Scottish and UK levels, and we must collectively find and support solutions that deliver affordability of energy, for the long-term. This is particularly vital given the damaging impacts of Brexit which is already having a serious effect on our ability to trade and work with our neighbours.

Technologies that take decades to deliver and are expensive for consumers, such as new nuclear fission, are not an acceptable solution and to continue pursuing these technologies will only add to the enormous pressures facing households and businesses.

In addition we cannot repeat the mistakes of the past and must ensure that our transition to a net zero economy is a just transition, providing opportunity and benefits for all.

Scotland already has a long, positive history of harnessing renewable energy. We have an abundance of renewable energy resources and strengths in skills and innovation that together make Scotland one of the best places in the world for renewables investment.

Scotland has been a frontrunner in onshore wind and, while other renewable technologies are starting to reach commercial maturity, continued deployment of onshore wind will be key to ensuring our 2030 targets are met.

With nearly 9 GW currently operational in Scotland onshore wind is a cheap and reliable source of zero carbon electricity.

Despite being excluded from the previous two auction rounds, onshore wind achieved the second lowest overall strike price across all technologies at the Contract for Difference Allocation Round 4, at £42.47 per MWh, which is around 45% lower than it cleared during Allocation Round 1 in 2015.

Scotland is doing its part but we cannot do this alone. The UK Government's recent relaxation of rules regarding the deployment of onshore wind is to be welcomed but it must be a lasting decision. Onshore wind has the ability to be deployed quickly, is good value for consumers and is widely supported by the public.

This statement, which is the culmination of an extensive consultative process with industry, our statutory consultees and the public, sets an overall ambition of 20 GW of installed onshore wind capacity in Scotland by 2030.

While imperative to meet our net zero targets it is also vital that this ambition is delivered in a way that is fully aligned with, and continues to enhance, our rich natural heritage and native flora and fauna, and supports our actions to address the nature crisis and the climate crisis.

The Scottish Government will continue to work together with industry, non-governmental organisations, our agencies, communities and wider partners to achieve this.

By acting now, we can set Scotland on a pathway to meeting our ambitious climate change targets in a way that is aligned to the needs of our citizens, supports a just transition and delivers opportunities for all.

Michael Matheson
Cabinet Secretary for Net Zero, Energy & Transport

Chapter 1: Ambitions and Aspirations

The Scottish Government wishes to thank all our stakeholders and interested parties who engaged with the [consultation on the draft Onshore Wind Policy Statement](#) between October 2021 and January 2022. The responses we received were invaluable in developing and refining the Scottish Government's onshore wind policy.

1.1. Current Deployment

- 1.1.1. The Scottish Government has had a long-standing target to generate the equivalent of 100% of gross Scottish electricity consumption* from renewable sources by 2020, with figures showing that Scotland reached 98.8% in 2020.

* Gross electricity consumption refers to total electricity generation minus net exports

- 1.1.2. We must now go further and faster than before. We expect the next decade to see a substantial increase in demand for electricity to support net zero delivery across all sectors, including heat, transport and industrial processes.
- 1.1.3. National Grid's [Future Energy Scenarios](#) project that Scotland's peak demand for electricity will at least double within the next two decades. This will require a substantial increase in installed capacity across all renewable technologies.
- 1.1.4. Scotland hosts the majority of operational onshore wind capacity in the UK, and our aim is to maintain the supportive policy and regulatory framework which will enable us to increase that deployment.
- 1.1.5. As of June 2022, the UK has 14.6 GW of installed onshore wind, with 8.7 GW of this in Scotland. Onshore wind generated 17.2 GWh of electricity in 2021. Scotland additionally (as of June 2022) has as much as 11.3 GW of onshore wind currently in the pipeline, spread over 217 potential projects:

| Status | GW |
|--------------------------------|--------|
| In Planning/Consenting Process | 5.53** |
| Awaiting Construction | 4.56** |
| Under Construction | 1.17 |

** Developments in the planning/consenting process have not yet been considered and given permission to proceed. Some of these projects will receive consent, but some may not, and it is unlikely that all of this noted capacity will be fully realised. A degree of duplication within the planning system must also be considered, where developments which have consent re-apply to adjust the parameters of that consent. This will also reduce the capacity which is deliverable from this overall figure.

1.2. Deployment Ambition to 2030

- 1.2.1. Our [Climate Change Plan Update](#) noted the need to develop 11-16 GW of renewable capacity through to 2032. This is consistent with RenewableUK's recently published '[Onshore Wind Industry Prospectus](#)', which sets out the need for Scotland to develop an additional 12 GW of onshore wind, meaning a total of 20.4 GW installed capacity, by 2030.
- 1.2.2. The Climate Change Committee (CCC) has developed [four exploratory scenarios](#) for emissions to 2050. These estimate that, in every scenario, the UK will require a total of 25-30 GW of installed onshore wind capacity by 2050 to meet government targets - which would mean doubling the current UK installed capacity.
- 1.2.3. The amount of capacity ultimately developed will continue to depend on a range of factors, which are covered in this document. These will also be considered alongside:
 - the development of other generating technologies and innovations; and,
 - the decarbonisation pathways and demand growth across other sectors such as heat, transport and industry.

1.3. Our 20 GW Ambition

- 1.3.1. Our [Programme for Government 2022/2023](#) committed the Scottish Government to publishing this final Onshore Wind Policy Statement and a Vision for Onshore Wind in Scotland, enabling up to 12 GW of onshore wind to be developed. It is vital to send a strong signal and set a clear expectation on what we believe onshore wind capacity will contribute in the coming years.
- 1.3.2. In line with this commitment, and reflecting the natural life cycles of existing windfarms, this statement sets a new ambition for the deployment of onshore wind in Scotland:

A minimum installed capacity of 20 GW of onshore wind in Scotland by 2030.

- 1.3.3. This ambition will help support the rapid decarbonisation of our energy system, and the sectors which depend upon it, as well as aligning with a just transition to net zero whilst other technologies reach maturity.

1.4. Legislative Context

- 1.4.1. The Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 (the Act) was passed by Scottish Parliament in September 2019. The Act commits Scotland to achieving net zero greenhouse gas emissions by 2045 at the latest, and also sets two interim targets to reduce emissions by 75% by 2030 and by 90% by 2040. Meeting these targets will require decisive and meaningful action across all sectors.
- 1.4.2. The Climate Change Committee (CCC)'s 2022 [Progress in Reducing Emissions in Scotland](#) report emphasised that Scotland cannot deliver our net zero ambitions through devolved policy alone and will require clear and supportive policy from both UK and Scottish Governments and from our respective agencies.
- 1.4.3. Statutory consultees (SEPA, NatureScot, Historic Environment Scotland, Local Authorities and National Parks) play a crucial role in the delivery of our net zero targets, whilst providing expert advice on key considerations. As we increase deployment of onshore wind the pressures on agencies will continue to increase and we must continue to support delivery of their role. This should be considered by the Onshore Wind Strategic Leadership Group in due course. More details on this group are available at [Chapter 2](#).

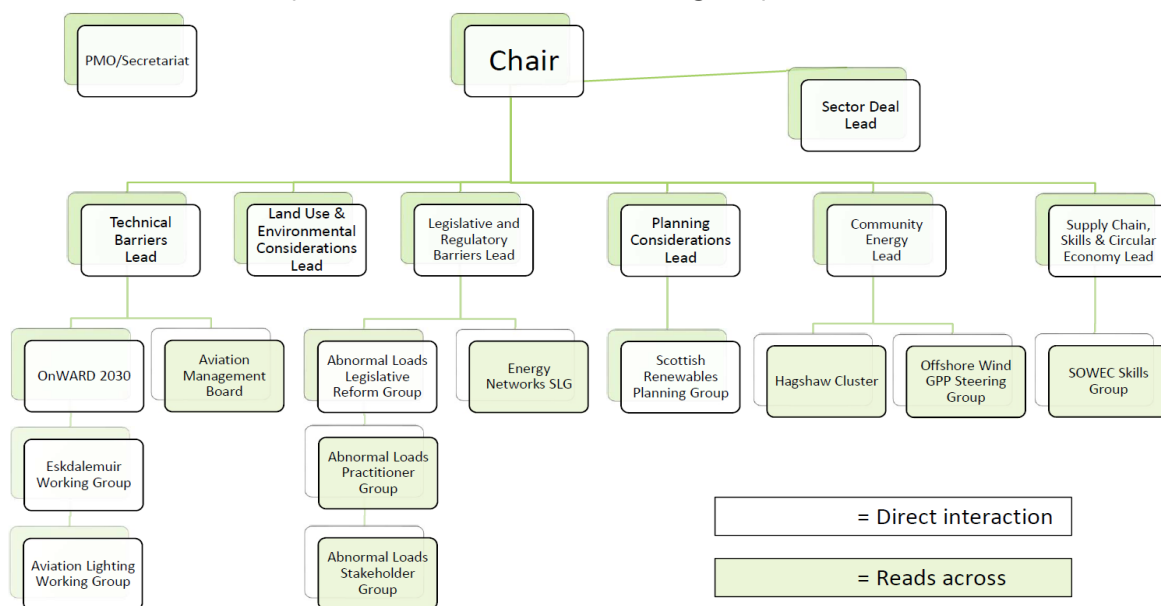
Chapter 2: Delivering on our Ambition for Onshore Wind in Scotland

2.1. Introduction

- 2.1.1. The Scottish Government is committed to achieving our climate change targets in a way that maximises the economic and social benefits of a just transition to a net-zero economy.
- 2.1.2. We need a collaborative approach across government, industry, community representatives and other stakeholders that will deliver on our onshore wind ambition. To this end, the Scottish Government will form an Onshore Wind Strategic Leadership Group (SLG) and will task this SLG with taking forward the aspirations of this policy statement, and the development of an Onshore Wind Sector Deal.

2.2. A Strategic Leadership Group for Onshore Wind in Scotland

- 2.2.1. The SLG's principal role will be to develop a sector deal for onshore wind, which will identify solutions to key deployment challenges, establish opportunities to maximise benefits to Scotland, and foster a collaborative spirit across the sector, while aiding a just transition.
- 2.2.2. As the Sector Deal will be a key deliverable for the group, the SLG will consist of government representatives, onshore wind industry leaders, Scottish Renewables, relevant Scottish Government agencies and Supply Chain representatives and a body representing issues affecting local communities.
- 2.2.3. Below is a potential structure for this group:



- 2.2.4. Relevant sub-groups will be formed to ensure that the key technical aspects of these issues are considered by experts and fed into the strategic leadership established by this group.

2.3. Vision for Onshore Wind in Scotland

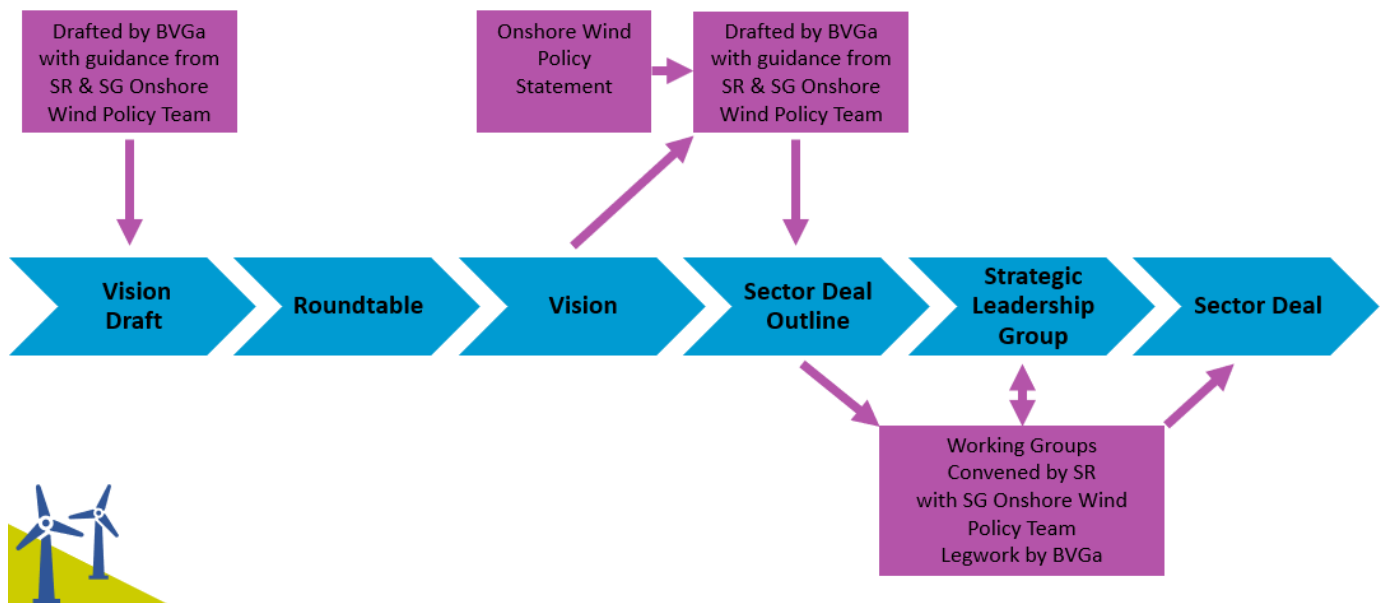
- 2.3.1. Scottish Renewables, on behalf of the onshore wind sector in Scotland, has produced a Vision Statement which we consider to lay the basis of a more detailed sector deal that the SLG will develop. The Vision Statement is available in [Annex 5](#).

2.4. Sector Deal

- 2.4.1. The Sector Deal will be a shared commitment between government and industry to deliver upon government ambitions while growing a key sector in a way that aligns with the principles of a just transition to net zero. We will reflect on approaches taken for other sector deals already in place between the UK Government and key sectors such as Artificial Intelligence, Construction, Creative Industries, Automotive and Offshore Wind.
- 2.4.2. Onshore wind will play a crucial role in delivering our legally binding climate change targets. There will be significant economic opportunities from supply chain growth, increased deployment and community involvement, therefore the onshore wind sector would benefit from a carefully considered sector deal. This deal must drive GVA and deliver enhanced community and local benefits and well-paid, highly skilled jobs across all parts of Scotland.
- 2.4.3. The Sector Deal will represent a shared commitment to achieve these goals by establishing a strategic partnership between government and the sector that we will continue to grow and strengthen in the years ahead.
- 2.4.4. Through our engagement with the sector on the Vision Statement, a pathway to an Onshore Sector Deal has been developed between the Scottish Government and Scottish Renewables. Given the scale and pace of delivery needed, we are committed to starting work on the Sector Deal immediately.

2.4.5. We see this work being taken forward as follows:

Pathway to an Onshore Wind Sector Deal



2.4.6. The direction and content of the Sector Deal will be led by the Onshore Wind SLG, which, as a partnership between industry, government and interested stakeholders, is best placed to ensure all views are considered and balanced.

2.4.7. However, any future sector deal should reflect Scottish Government ambitions around supply chain, skills, increased deployment of onshore wind, community benefits and shared ownership, and positive biodiversity outcomes. It is crucial that the principles of a just transition are actively applied across the sector and that the benefits of the increased deployment of onshore wind are felt by all of Scotland's citizens, especially in the communities that host developments.

2.4.8. The Scottish Government will work with colleagues in the Department for Business, Energy and Industrial Strategy (BEIS) on the development and delivery of this Sector Deal and will continue to urge the UK Government to ensure that UK policy and support frameworks act in support of our ambitions.

2.5. Diversity in the sector

2.5.1. Scotland's onshore wind industry must reflect the diversity of the Scottish population and maximise the available skills, ensuring the right people are in the right jobs, regardless of background.

- 2.5.2. Everyone should have equality of opportunity and work in an environment free from unfair discrimination. The Scottish Government strongly encourage members of industry to reflect this in their working practices.
- 2.5.3. As an example of the significant work still to be done, in 2015, Powerful Women presented a challenging target to the UK energy sector for "40% of middle management and 30% of executive board positions to be held by women by 2030." However, in their 2022 [Annual State of the Nation report](#), only 15% of executive director positions were held by women*, showing how far we still have to go.

*We do not have disaggregated data for companies based in Scotland but consider the picture is likely to be similar in the Scottish sector.

- 2.5.4. We are also aware that the UK Offshore Sector Deal challenges the offshore wind sector to achieve a workforce that is 33% female by 2030 (with a stretch target of 40%) and improves representation from minority ethnic groups to 9% (with a stretch target of 12%). The Scottish Government expect these issues to be considered accordingly in an onshore wind sector deal.

Chapter 3: Environmental Considerations: Achieving Balance and Maximising Benefits

3.1. Introduction

- 3.1.1. The Scottish Government is committed to ensuring Scotland's citizens have access to affordable, low carbon and renewable energy whilst tackling the climate and nature crises in tandem.
- 3.1.2. Our net zero journey is multi-faceted and no single technology or approach will allow us to meet our challenging deployment ambitions. We must achieve a balance to ensure that we maximise both the environmental and economic benefits to Scotland.

3.2. Shared Land Use

- 3.2.1. The economic value of Scotland's natural capital is significant. In 2018, the value of [Scottish natural capital was £206 billion](#), equivalent to 17% of the UK asset valuation. The Scottish Government is committed to a “four capitals” approach to economic recovery. This means placing natural capital on an equal and interlinked footing with social, economic and human capital, to help build a stronger, more resilient wellbeing economy. Nature-based solutions, like peatland restoration, provide ways to target investment in the right types of natural capital in the right places.
- 3.2.2. In May 2020 the Scottish Government published [Scotland's Environment Strategy](#) which creates an overarching framework for Scotland's strategies and plans on the environment and climate change. These set out our long-term ambitions for Scotland's natural environment and our role in tackling the global climate and nature crises. The Continuity Act placed the strategy on a statutory footing by requiring Scottish Ministers to prepare an ‘environment policy strategy’ and to submit annual progress reports to Parliament until it is published. The first report was published in March 2022 and is available on the Scottish Government website [here](#).

- 3.2.3. We are aware of the varying demands on land in Scotland and that a balance must be struck to best serve our net zero ambitions. Our [Land Use Strategy](#), published in March 2021 stated:

"Our land contributes to climate change mitigation in many ways. Scotland has a long and positive history of harnessing renewable energy and our capacity to generate it will need to be increased to meet our net zero targets. Our energy will continue to be provided by a wide and diverse range of renewable technologies, including onshore wind. We will need to continue to develop wind farms, in the right places, and also look to the extension and replacement of existing sites. As set out in our Onshore Wind Policy Statement, in order to achieve this developers and communities will need to work together to ensure that projects strike the right balance between environmental impacts, local support, benefit, and – where possible – economic benefits for communities, for example through community ownership or other means... "

- 3.2.4. As Scotland moves towards a net zero economy there will need to be significant land use change from current uses to forestry and peatland restoration. This needs to happen alongside ensuring space for other essential activities such as food production, renewable energy generation, including onshore wind, and the protection and enhancement of habitats and biodiversity.
- 3.2.5. Our statutory and environmental consultees will continue to play a crucial role in assessing this balance for all onshore wind planning applications. The onshore wind sector must continue to build on their positive relationship with the statutory bodies, engaging as early in their considerations as possible, and building upon the existing collaborative approach through the design and development of sites.

3.3. Peat and Carbon-Rich Soils

- 3.3.1. Scotland has over 2 million hectares of peatland, equating to approximately one third of its land area, and our peatlands are of national and global significance. In good condition, peatlands provide multiple benefits: capturing and storing carbon, supporting nature, reducing flood risk, cleaning the water that feeds burns and lochs, and providing places for leisure that can support health and wellbeing. However, around 75% of our peatlands are degraded through drainage, extraction, overgrazing, burning, afforestation and development.
- 3.3.2. Degraded peat offers fewer benefits and becomes a net emitter of greenhouse gases and accounts for around 15% of Scotland's total

net emissions. Reversing degradation through peatland restoration is therefore central to mitigating and adapting to the linked climate and nature crises.

- 3.3.3. Our [Climate Change Plan update](#) set a target to restore 250,000 hectares of degraded peatland by 2030. Our £250 million funding package is directly supporting this and will leverage additional private finance. This investment will support good, green jobs in the rural economy and play a part in Scotland's just transition to net zero by 2045.
- 3.3.4. Against our target to restore 250,000 hectares by 2030, we have delivered 57,500 hectares to date at an average annual rate of 5,700 hectares in recent years. This is below our annual goal of at least 20,000 hectares, and there are many reasons for this, not least that peatland restoration is a sector in its infancy and is building delivery capacity.
- 3.3.5. The Scottish Government-led [Peatland Programme](#) is driving action to address the many barriers to increase restoration rates in order to meet both current and future targets. This includes actions to boost supply and demand, increase private finance, incorporate peatland interests in other policy areas and acquire new evidence to support decision making.
- 3.3.6. The continued deployment of onshore wind and restoration of peatlands and carbon-rich soil will both play vital roles in delivering Scotland's emissions reductions targets, as stated in the [Climate Change \(Emissions Reduction Targets\) \(Scotland\) Act 2019](#). It is imperative that we strike the right balance in how we care for and use our land. Given the established need for additional onshore wind turbines to tackle climate change and to ensure long-term availability of cheap, renewable energy, in some cases it may be necessary to construct onshore wind farms on areas of peat.
- 3.3.7. We recognise, however, that the peatland impacts of onshore wind farms can be significant and we must balance the benefits from onshore wind deployment and the impacts on our carbon rich habitats. This includes being aware that there is potential for development in an area of deep peat to have a net negative carbon impact. We therefore commit to the following actions:
 - Work is underway to assess the operation of, and if necessary update or replace, the carbon calculator. The Scottish Government will ensure that adequate tools and guidance are available to inform the assessment of net carbon

impacts of development proposals on peatlands and other rich carbon soils.

- We will convene an expert group, including representatives from industry, agencies and academia. This will provide advice to the Scottish Government on how guidance could be developed to support both our peatland and onshore wind aims.

3.3.8. Overall, the onshore wind sector in Scotland has made remarkable advances over the past decade in mitigation and restoration solutions for peatland, with environmental agencies and the renewables sector working together to update the [good practice guidance for the construction of wind farms](#) in 2019. In addition, Scottish Renewables have considered this issue and published their [Wind Power and Peatland: Enhancing Unique Habitats](#) which aims to promote best practice across the sector.

3.3.9. Scotland's onshore wind sector can bring many and considerable benefits to rural areas, ranging from the delivery of jobs and investment to the restoration and protection of natural habitats. The Scottish Government wants to see the onshore wind sector continuing to contribute to peatland restoration as part of development and expects the sector to step up to the challenge of biodiversity loss by showcasing considered schemes that will not just mitigate impact but also improve and enhance our natural environment.

3.3.10. To take just one example, Clyde Wind Farm is an established wind farm within the landscape and has the benefit of seeing the initial results from these peatland restoration and biodiversity improvement programmes. Their experiences and lessons learned are detailed in [Annex 1](#).

3.3.11. We consider the identification of the condition of existing peatland to be a vital part of the wind farm design process. It is crucial that all developers engage in an open dialogue with land management as early as possible, ensuring that appropriate, site-specific solutions can be deployed through habitat and land management plans. Bespoke management plans should incorporate industry-wide advances in thinking as well as site-specific knowledge to ensure the optimum outcome; where pristine peat is protected, and degraded peat is restored and/or enhanced.

3.3.12. The variety of measures that can be included within wind farm design to improve degraded peatland have continuously

developed as the industry has matured. Peatland restoration and enhancement, developed in tandem with improving habitats for important and protected species, allows projects to deliver multiple positive benefits to biodiversity and the natural environment. These measures should be further enhanced through ongoing monitoring to ensure the efficacy of the actions undertaken, and iterative improvements should therefore be expected.

- 3.3.13. By assessing the net carbon impacts of proposed developments on carbon-rich soils and peatlands we will ensure that planning and consenting regimes result in the right projects in the right places, with all applications considered on a case-by-case basis within the relevant planning regime.

3.4. Forestry

- 3.4.1. In February 2019 the Scottish Government published [Scotland's Forest Strategy](#), covering the decade from 2019 to 2029. This presented a long-term framework for the expansion and sustainable management of Scotland's forests and woodland. It specifically noted the role of Scotland's forests in climate change mitigation and in achieving the targets set out in the Paris Agreement.
- 3.4.2. Creating new forests and woodlands is an important tool for reducing greenhouse gas emissions. For each hectare of forest and woodland created, it is estimated that, on average, seven tonnes of CO₂ will be removed from the atmosphere each year. The [Climate Change Plan](#) includes a commitment to increase forest and woodland cover in Scotland from around 19% now, to 21% by 2032, and our 2020 [update to the Climate Change Plan](#) set out ambitious targets to incrementally increase woodland creation from 12,000 hectares per year in 2020/21, up to 18,000 hectares per year by 2024/2025.
- 3.4.3. While our ambitious woodland creation targets will help deliver additional carbon reductions, the existing resource must also be managed sustainably to preserve Scotland's carbon sink and the many other benefits and ecosystem services that woodlands provide. These benefits can include positive biodiversity impacts, flood mitigation, people's health and wellbeing, and supporting the economy by providing jobs and timber to meet our needs.
- 3.4.4. Protection of existing forestry, as well as expansion, is integral to our climate change targets. Woodland removal should be kept to a minimum and where woodland is felled it should be replanted. These aspects of Scottish Government policy, detailed

through the [Control of Woodland Removal Policy](#) have formed part of the considerations for relevant onshore wind developments for more than a decade. This proves that the protection of forestry and the promotion of onshore wind already co-exist.

- 3.4.5. The Scottish Government recognises that net zero cannot be attained without a considered balance of land use. Our ambitions for forestry and onshore wind can complement each other, and there are many good examples of sites supporting both land uses.
- 3.4.6. Through consultation for the draft Onshore Wind Policy Statement (2021) we asked for views on the integration of taller turbines in forested areas. What would previously have been considered “taller” turbines are now more common and must continue to be deployed in appropriate locations. The “keyholing” technique, where a small area of forestry directly surrounding turbines is removed, thus preventing the need for clear-felling, is one manner of achieving such integration and one which many consultation respondents considered a “sensible solution”.
- 3.4.7. Taller turbines have a higher installed capacity which results in the need for fewer turbines per site. This, alongside the ongoing commitment to compensatory planting, will allow the Scottish Government commitments to both onshore wind development and re-forestation to continue to complement one another.
- 3.4.8. However, the Scottish Government recognises that the successful integration of turbines and forestry will depend on the unique attributes of each site. Developers must continue to engage with Scottish Forestry and with local Forestry and Woodland Strategies and ensure that careful siting and design minimises impacts on woodland and integrates enhancement measures where relevant.

3.5. Biodiversity

- 3.5.1. Securing positive effects for biodiversity is one of six statutory outcomes for our fourth [National Planning Framework](#) (NPF4). Delivering both our emissions reduction targets and our wider national priorities for the environment and land use will require us to conserve and enhance biodiversity, protect and restore habitats and species populations while generating enough green electricity to support our economy and the decarbonisation of currently carbon-intensive sectors. Delivering these outcomes will support the achievement of our net zero and nature ambitions.
- 3.5.2. The Climate Change Plan update describes an ambition to develop thriving economies based around woodland creation,

peatland restoration and biodiversity as well as sustainable tourism, food and drink and energy generation.

- 3.5.3. The Scottish Government published a [consultation](#) on a new Scottish Biodiversity Strategy on 20 June 2022 and consultation ran until September 2022. This draft strategy set out the evidence of biodiversity loss, and its links to climate change, alongside Ministers' high-level goals for biodiversity in Scotland: to halt biodiversity loss by 2030 and substantially restore biodiversity by 2045.
- 3.5.4. The Biodiversity Strategy will be supported by a series of adaptive, dynamic Delivery Plans which will set out the actions needed to achieve the ambition in the Strategy and detail Scotland's commitment and ambition for the recovery and restoration of biodiversity in Scotland. The new strategic framework for biodiversity, incorporating the Strategy to 2045 and Delivery Plan, is expected to be published in Summer 2023. The framework also includes our new Natural Environment Bill which will establish statutory targets for nature recovery for the first time in Scotland.
- 3.5.5. Wind Europe published '[The Role of Wind Energy in Wildlife Conservation](#)' in 2017, and SEPA and NatureScot have also published detailed guidance on the design and management of wind energy sites so that they can be properly sited in the landscape and make a positive contribution to delivering the ambitions of the Biodiversity Strategy. The overarching aim is to enable the protection and restoration of local biodiversity, ensuring that wind energy can be deployed in harmony with, rather than at detriment to, the essential protection and regeneration of our natural environment.
- 3.5.6. Onshore wind will remain an essential part of our energy mix and climate change mitigation efforts, and the resolution of the balance between its deployment and biodiversity interests requires careful discussion and planning at a local level. As the rate of onshore wind deployment increases in the coming years, we see a great opportunity for wind energy developments to further contribute significantly to our biodiversity ambition. By proactively managing intact habitats and the species they support, restoring degraded areas and improving connectivity between nature-rich areas, onshore wind projects will contribute to our climate change targets and help address the biodiversity crisis.
- 3.5.7. Evidence shows that significant positive effects for biodiversity from wind farm developments can be achieved and examples of best practice of onshore wind developers enhancing biodiversity on their sites is available at [Annex 1](#). We expect all developers to draw

from these best practice examples and demonstrate a clear commitment to protecting and restoring habitats.

3.6. Landscape & Visual Amenity and National Planning Framework 4 (NPF4)

- 3.6.1. Meeting our climate targets will require a rapid transformation across all sectors of our economy and society. This means ensuring the right development happens in the right place. Meeting the ambition of a minimum installed capacity of 20 GW of onshore wind in Scotland by 2030 will require taller and more efficient turbines. This will change the landscape.
- 3.6.2. We laid our Revised Draft National Planning Framework 4 (NPF4) in the Scottish Parliament on 8 November, signalling support for all forms of renewable, low-carbon and zero emission technologies, and making clear that LDPs should seek to realise their area's full potential for electricity and heat from renewable, low carbon and zero emission sources. The only areas where wind energy is not supported are National Parks and National Scenic Areas. Outside of these areas, the criteria for assessing proposals have been updated, including stronger weight being afforded to the contribution of the development to the climate emergency, as well as community benefits.
- 3.6.3. Our Revised Draft NPF4 recognises that significant landscape and visual impacts are to be expected for some forms of renewable energy, and makes clear that where impacts are localised and/or appropriate design mitigation has been applied, they will generally be considered to be acceptable.
- 3.6.4. Subject to parliamentary approval, and adoption by Scottish Ministers, NPF4 will form a part of the statutory development plan meaning its provisions will be directly applied in local development planning and decisions on planning applications.
- 3.6.5. Landscape Sensitivity Studies (LSS) are strategic appraisals of the relative sensitivity of landscapes to development types or land use changes. They are a tool to help guide development to less sensitive locations. These studies can inform a proposal's Landscape and Visual Impact assessment (LVIA).
- 3.6.6. However, LSS should not be used in isolation to determine the acceptability of a development type in landscape terms and do not replace the need for individual LVIAs and/or Environmental Assessments for individual proposals, however they will continue to be a useful tool in assessing the specific sensitivities within an area.

3.7. Noise

- 3.7.1. 'The Assessment and Rating of Noise from Wind Farms' ([Final Report, Sept 1996, DTI](#)), (ETSU-R-97) provides the framework for the measurement of wind turbine noise, and all applicants are required to follow the framework and use it to assess and rate noise from wind energy developments.
- 3.7.2. [The Institute of Acoustics \(IOA\) Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise](#) was published in May 2013 to support the use of ETSU-R-97 when designing potential windfarm schemes, and the monitoring of noise levels from generating sites. The Scottish Government recognises this guide as a useful tool which developers can use in conjunction with ETSU-R-97.
- 3.7.3. The Scottish Government is aware that the UK Government has been considering the extent to which ETSU-R-97 may require updating to ensure it is aligned with the potential effects from more modern turbines. The Scottish Government supports this work and we anticipate the results of a short-term review project in due course.
- 3.7.4. Until such time as new guidance is produced, ETSU-R-97 should continue to be followed by applicants and used to assess and rate noise from wind energy developments.

Chapter 4: Benefits to Local Communities and Financial Mechanisms

4.1. Introduction

- 4.1.1. The Scottish Government remains committed to the principles of a just transition to a net zero economy, and that means ensuring that communities across Scotland feel the benefits of this transition. Community benefit and shared ownership can be transformational for the communities who host renewable developments, and we must ensure that industry continue to deliver on these expectations.

4.2. Community Benefit and Shared Ownership

- 4.2.1. The Scottish Government is committed to putting communities front and centre when it comes to the development of renewable projects in Scotland – an approach which has led the way across the UK. Community benefit from, and shared ownership of, renewable energy developments have a key role to play in engaging communities and securing Scotland's just transition to net zero, supporting the delivery of lasting economic and social benefits.
- 4.2.2. We have commissioned research in this vitally important area, due to complete next year. The outputs from this work will help build our evidence base for future policy development and provide insights on how we can maximise the benefits flowing to communities across Scotland, in line with [Just Transition Outcomes](#).
- 4.2.3. To secure a just transition that benefits all of Scotland's communities, we must take steps to ensure that our national, regional and local energy economies are thriving and that the transition to net zero delivers for all parts of Scotland.
- 4.2.4. We are committed to increasing access to affordable energy, maximising community benefits from, and ownership of, energy projects, and providing regional and local opportunities to participate in our net zero energy future. We are encouraging developers to offer shared ownership opportunities to communities as standard on all new renewable energy projects, including repowering and extension to existing projects.

Community Engagement and Community Benefits

- 4.2.5. In collaboration with renewable energy developers and local communities, the Scottish Government first published the [Good Practice Principles \(GPPs\) for Community Benefits from Onshore](#)

[Renewable Energy Developments](#) in 2014. These longstanding principles, which were updated in May 2019, have been widely adopted across the renewables industry, providing a benchmark for the sector.

- 4.2.6. We continue to encourage all renewable energy businesses, regardless of technology type, to offer community benefits packages – including in relation to the repowering of existing sites and extensions to existing projects.
- 4.2.7. The GPPs for onshore renewable energy developments continue to promote the provision of community benefits at a national level equivalent to £5,000 per installed megawatt per annum, index linked for the operational lifetime of the project.
- 4.2.8. The GPPs place a strong emphasis on the importance of communities and renewable energy businesses considering all community benefits options openly and fully. In some cases, these payments will take the form of a fund, whereas other communities may prefer more flexible benefits. It is vital that communities are strongly engaged and involved in agreeing the best approach for their area, one which fits their long term needs and aspirations.
- 4.2.9. The process should always be conducted in a way that allows both renewable energy businesses and communities to identify clearly the best and most meaningful community benefits options and packages, with a focus on creating tangible benefits and achieving a lasting legacy for local communities. The Scottish Government expects developers and community groups to consider how they can address longer term community needs, consistent with the [Just Transition Outcomes](#).
- 4.2.10. Our Community and Renewable Energy Scheme (CARES), delivered by Local Energy Scotland on behalf of the Scottish Government, provides funding and support to help communities identify their needs, aspirations and associated outcomes in relation to community benefits, and can provide advice and support for securing and setting up community funds. CARES has supported Community Action Plans, which help to provide communities with a clear vision for their area and identify their priorities for community benefit funding. Local Energy Scotland's [Community Benefit Toolkit](#) also guides community groups through the process, from initial discussions with a developer through to creating a lasting legacy.
- 4.2.11. Local Energy Scotland also hosts and administers a register of community benefits which showcases community benefits provision across Scotland. The [Community Benefits Register](#) shows that over

£22.8 million had been paid out in community benefits in the 12 months between August 2021 and August 2022. Renewable energy businesses should submit community benefit fund data to Local Energy Scotland annually to ensure the impact of the sector is recognised. A number of community benefits case studies, which can help share knowledge and best practice, can be found in [Annex 4](#) and at [Local Energy Scotland](#).

- 4.2.12. We are also currently reviewing and updating our GPPs for Community Benefit from Offshore Renewable Energy Developments. When we formally consult on the draft guidance next year, we will ensure that we build any relevant lessons from this process into future updates to the GPPs for onshore renewables.

Shared Ownership

- 4.2.13. Shared ownership of renewable developments supports a just, inclusive transition as well as our ambition for more local ownership, and provides a chance for all stakeholders to benefit from greater partnership working. It will also help us realise our community and local energy target of 2 GW of community and locally owned energy by 2030. However, we want to make clear to industry that we see this as the minimum and we encourage them to consider shared ownership opportunities in all of their projects.
- 4.2.14. The latest [Community and locally owned energy in Scotland report](#) from the Energy Saving Trust shows that, as of end December 2021, 270 projects either had shared ownership or were under discussion for shared ownership, out of which 47 were operational, accounting for 67 MW of community and locally owned capacity. The remaining 223 projects were in various stages of development and account for 1,003 MW of the in-development capacity.
- 4.2.15. Our [Good Practice Principles for Shared Ownership of Onshore Renewable Energy Developments](#) underline our determination to continue supporting shared ownership. We are working to support the pipeline of such projects, including through engaging with the Scottish National Investment Bank.
- 4.2.16. CARES offers support to communities and developers interested in shared ownership of a renewable project. Local Energy Scotland provides impartial support and advice, including guidance on the Financial Services and Markets Act and Financial Conduct Authority requirements. It can also help communities to access funding and contractors for project management, financial matters, and legal matters, enabling those communities to decide if shared ownership is right for them.

- 4.2.17. We continue to encourage the renewables industry to consider, explore and offer shared ownership opportunities as standard on all new renewable energy projects, including repowering and extensions to existing projects.
- 4.2.18. We also encourage innovative approaches to ensuring local communities can benefit directly from the affordable electricity being produced on their doorstep, in the form of local community tariffs/discounts or other similar approaches. We understand that this is being considered by members of the onshore wind industry and would encourage the progression of these discussions and arrangements.

Community Engagement and the Repowering Process

- 4.2.19. Given the lifespan of renewable development, most wind farm sites, and their surrounding communities, may have changed markedly since the wind farm was originally considered through the planning and consenting system.
- 4.2.20. End of life provides decision makers, developers, operators and local communities with an opportunity to reconsider the development's potential impact, including issues such as shadow flicker, landscape and visual impact, noise, community benefit and community empowerment and engagement, while recognising that the development has been in place for a significant period.
- 4.2.21. Most communities have thus far been either ambivalent towards, or supportive of, the repowering of wind farms in their locality. A [study](#) from 2019 suggested that local communities are more likely to be supportive of an application to repower or extend the life of an existing local wind farm, rather than an application for new onshore wind development in an entirely new location. This community acceptance, engagement and support can play a part in the smooth transition of proposals through the planning and consenting system, but it must also give communities a new opportunity to engage with developers and maximise opportunities for community benefit and shared ownership. The study can be found [here](#).
- 4.2.22. It remains vital that developers act as 'good neighbours', working in tandem with local communities, communicating over the course of a wind farm's life and building good relationships. This should allow concerns to be addressed as they emerge, empower communities to engage positively with the development, and secure community enhancements.

- 4.2.23. As repowering gains momentum over the coming decade, we will be looking to all renewable energy businesses and communities to use the national standards set out within the Good Practice Principles for Community Benefits from Onshore Renewable Energy Developments.

4.3. Financial Mechanisms

- 4.3.1. Scotland's onshore wind industry has a long history of delivering wind farms, even in the face of financial adversity, such as the closure of the ROC scheme, by embracing alternative mechanisms such as Power Purchase Agreements (PPAs), merchant projects and private finance. However, in order to meet our 2030 and 2045 emissions reduction targets, Scottish onshore wind projects must minimise costs and risk, while maximising investment opportunities.
- 4.3.2. We know that development costs such as fabrication and installation have generally been reducing over time as the industry matures, making investment more effective.
- 4.3.3. However, in order to maximise cost reductions, the Scottish Government believes that better collaboration between developers, agencies and local authorities is essential. This is more significant now given the cost crisis being experienced by energy consumers across Great Britain. As noted earlier, energy remains a reserved matter, with the UK Government responsible for decisions relating to financial support for the onshore wind industry and other renewable technologies.

Corporate Power Purchase Agreements (PPAs)

- 4.3.4. The emergence of PPAs has provided an alternative for many developers, in addition to giving organisations with a base in Scotland an avenue through which to fulfil their renewable electricity corporate and social responsibilities.
- 4.3.5. This use of an innovative financial solution to achieve mutual benefits across sectors, supporting the transition to a net zero economy, aligns well with Scottish Government ambitions. However, finding suitable corporations in Scotland with sufficient long-term buying power can be difficult, which can limit the use of this financial mechanism.
- 4.3.6. PPAs can be mutually beneficial and commercially viable, supporting developers in the construction of new green infrastructure and bringing clean energy to the market without a government support scheme. They can provide certainty for

partners on future energy costs and align with net zero targets in generating additional renewable energy.

4.3.7. Two examples of where PPAs are being used in practice are:

- **Beinn nan Tuirc**

This wind farm on the Kintyre Peninsula is a 14 turbine (50MW) development whose entire output will be purchased by Amazon to power its data centres, corporate offices and fulfilment centres.

- **Halsary Wind Farm**

The 15 turbine (30MW) in Caithness was built by ScottishPower Renewables to support the energy needs of Tesco, as part of Tesco's commitment to becoming a net-zero business in the UK by 2035. Halsary windfarm generates enough clean energy to power the equivalent of almost 20,000 homes a year and will now help power Tesco's stores and operations.

Over the lifetime of this agreement more power will be put back into the grid than Tesco's operations take out, meaning there is more renewable energy on the market that did not exist before.

Up to a hundred new jobs will be created in each of the sites over the lifetime of the projects with around £400,000 of community benefit generated per annum between the two sites.

4.3.8. We are aware of industry's ask of UK Government and, within currently available powers, Scottish Government to take supportive actions such as: establishing an accessible PPA market, adopting an aggregator role, investigating the use of PPAs for domestic consumption at scale and considering renewable PPAs in public procurement. The proposed Strategic Leadership Group, and subsequent sector deal, provides an opportunity to explore these options in more detail.

Contracts for Difference

4.3.9. In 2021, onshore wind was reintroduced into Pot 1 of the Contracts for Difference (CfD) auction process, alongside other established technologies such as solar. The Scottish Government welcomed this.

4.3.10. [Allocation Round 4](#) (AR4) of the CfD opened in December 2021, and results were published in July 2022. The Scottish Government

was encouraged to see that several projects were successful in this round:

- Nearly 888MW of Scottish onshore wind was supported through pot 1, including a repowered site and;
- Around 600MW of remote island wind projects supported through pot 2.

4.3.11. The success of AR4, and that of future rounds, plays a critical role in the ability to achieve our onshore wind ambition in Scotland and we expect more repowered sites to be able to compete in the coming years.

4.3.12. The Scottish Government strongly supports the continued availability of the CfD scheme and recognises this financial mechanism as being the most secure investment option for onshore wind developers right now.

Consultation on Contracts for Difference (CfD) and Supply Chain Plans

4.3.13. The CfD mechanism has helped drive down the cost of renewable electricity support for consumers in recent years. However, the dramatic reductions in support achieved at recent CfD rounds have also increased the pressure to slash the capital costs of renewable electricity projects.

4.3.14. Whilst the CfD is critical for delivering support to deployment at low cost to consumers, the pressure to reduce capital costs has had significant impacts on the domestic supply chain, with suppliers greatly reducing margins or losing contracts altogether. This is a result of the CfD scheme's effectiveness in reducing developer bids and technology costs. The Scottish Government recognises that this pressure has had some negative effects on the domestic supply chain and investor confidence.

4.3.15. The Supply Chain Plans element of the CfD mechanism provides an opportunity for applicants seeking to construct projects of 300 MW and over to provide key information around their project's scope and associated packages of work. We believe that this information should be shared with the domestic supply chain at the earliest opportunity so that companies can prepare their bids for upcoming contracts.

4.3.16. Moreover, it is crucial that developers make every reasonable effort to meet their supply chain plan commitments, which is why we support BEIS' proposal to introduce a termination right for the most egregious breaches in supply chain plan commitments. BEIS' proposal can be found [here](#).

4.3.17. The Scottish Government supports its agencies in identifying opportunities to work with supply chain companies to ensure suppliers are competitive. We expect developers to make every effort to support the domestic supply chain and support the UK Government's decision to ask developers to provide UK content estimates for their projects as part of the Supply Chain Plan questionnaire.

Chapter 5: Onshore Wind and Benefits to Scotland

5.1. Introduction

- 5.1.1. The [Climate Change Plan Update](#), published in December 2020, stated "The green recovery and transition to net-zero present considerable economic opportunities for Scotland. By capitalising on Scotland's strengths in energy, natural capital, innovation and our skilled workforce and universities, we can set Scotland at the forefront of growing global markets."
- 5.1.2. The socio-economic benefits of the onshore wind sector in Scotland are widespread, from investment and innovation to skills development and jobs. The latest statistics from the UK Government show that onshore wind in the UK generated £2.4 billion in turnover in 2020 alone.
- 5.1.3. This chapter explores the potential opportunities afforded to Scotland by onshore wind, including supply chain, skills and tourism.
- 5.1.4. The Scottish Government expects all onshore wind developments in Scotland to support our national and local supply chains and we are determined to see significant increases in local content, to steadily increase our skilled workforce, to see greater diversity and for our energy sector to continue to boost our local economies.
- 5.1.5. Onshore wind already provides significant support to local economies across Scotland, through direct and indirect jobs, supporting our hospitality industry and in some cases offering apprenticeship opportunities to areas that would otherwise be overlooked for investment.
- 5.1.6. There is an opportunity to capitalise on established expertise and experience as onshore wind is deployed at greater volume over the coming decade. We expect that these opportunities, and the economic value attached, will exist predominantly within Scotland, but this expertise will extend across the UK.

5.2. Supply Chain

- 5.2.1. Scotland already has a well-established energy supply chain and due to the Scottish Government's long-standing support for onshore wind, Scotland boasts an incredibly skilled and globally recognised workforce with thousands of skilled workers in manufacturing, operations and maintenance (O&M), environmental assessment and planning, and project management.

- 5.2.2. The University of Strathclyde's study, published in October 2022, '[The Economic Impact of Scotland's Renewable Energy Sector – Update](#)' shows that onshore wind developments alone directly support over 2,600 FTE jobs in Scotland. According to the Office of National Statistics, each direct job created, supports 1.24 indirect jobs, increasing the overall impact substantially. The recent [Onshore Wind Prospectus](#) suggests that approximately 17,000 jobs and the equivalent of £27.8bn in GVA could be achieved in Scotland if we are able to deploy an additional 12 GW by 2030.
- 5.2.3. We recognise that, at present, the Scottish manufacturing supply chain for the wind industry is weak. Over the coming years we have a real opportunity to create an established remanufacturing industry based on circular economy principles. This has the potential to add significant investment into Scotland's economy, as well as introduce new skills and support new direct, and indirect, jobs to meet increasing demand. Additionally, a local supply chain of remanufactured components reduces the reliance on the global supply chain and could reduce the lead time of the construction phase of wind energy development.
- 5.2.4. RenewableUK are currently working to fully understand the supply chain opportunities for Scotland, and the rest of the UK. We expect their report shortly and will use it to inform our approach to maximising supply chain benefits. We expect the report will be considered by the Onshore Wind Strategic Leadership Group and will contribute to discussions around the sector deal.
- 5.2.5. The rapid expansion of Scotland's onshore wind capacity, and associated manufacturing opportunities, will play a key role in the future. Scotland's Enterprise agencies and Scottish Development International will continue to work with domestic suppliers in other Scottish energy sectors to better understand capability and capacity gaps. The Scottish Government is keen to ensure that companies can target key manufacturing contracts throughout this decade and beyond.
- 5.2.6. The Scottish Government expects onshore wind developers to engage with domestic manufacturers and ports to ensure that the Scottish supply chain has visibility of a pipeline of contracts. We want developers to seek out opportunities throughout the development of their project; building the competitiveness, capability and capacity of the Scottish supply chain. This will help keep costs down for consumers, as well as creating and growing competitive business, increasing local jobs and boosting our opportunities for exports. Developers should seek to engage

Scottish companies early in procurement and open tendering processes and provide support to help them navigate forward.

- 5.2.7. We expect to see Scottish based suppliers being given a realistic opportunity to compete for manufacturing contracts. Developers, and those at the top of the supply chain, should work collaboratively to establish and develop manufacturing facilities and key infrastructure that can be utilised throughout the construction of multiple projects in Scotland.
- 5.2.8. The Scottish Government and its Enterprise Agencies will continue to work closely with the sector to identify and progress opportunities for inward investment in the domestic supply chain. This is particularly the case for our Small and Medium- sized Enterprises (SME) base. Our Enterprise Agencies currently put Net Zero and developing green jobs at the heart of their approach to business support and are available to provide product development support along with funding and grants.

5.3. Repowering

- 5.3.1. Not all onshore wind development needs to take place on new sites. As some of Scotland's first wind farms reach the end of their consented life, we can consider multiple options that either enable the use of modern, more efficient turbines or maintain the current turbines to ensure they continue to generate beyond their anticipated life.
- 5.3.2. Repowering, and extending the operational life of wind farms, can take different forms, and the coming years are likely to bring advances in engineering, technology and environmental practices that will increase the opportunities to repower at particular sites.
- 5.3.3. According to a survey conducted by RenewableUK, repowering has garnered significant support in Scotland, with 74% of people supporting the replacement of old turbines with new ones, once they reach the end of their lifespan. Additionally, 67% of people support installing modern, taller turbines in order to generate more power. The survey can be found [here](#).
- 5.3.4. Repowering to date has included new or upgraded components and technology being installed which can lengthen the operational life of a wind farm, while the layout and general scale of turbines remain unchanged. This is now known as life extension.
- 5.3.5. However, in their 2021 report, '[The Future of Onshore Wind Decommissioning in Scotland](#)', Zero Waste Scotland states that life

extension is a “finite activity that relies on the decommissioning and refurbishing of existing components”. The associated operations and maintenance costs required to keep existing turbines operational, and the availability of parts to service older turbines mean that we cannot rely on life extension to ensure our current fleet remains operational.

- 5.3.6. Other repowering options include dismantling existing turbines and installing new ones, potentially larger in scale, while re-using existing infrastructure (e.g., access roads, connection to a local electricity network). In these cases, the proposal is for a new wind farm, and can often extend the footprint of the existing wind farm into previously undeveloped areas.
- 5.3.7. Repowering using taller, more powerful turbines, requires significantly fewer turbines to generate more power. For example, SSE Renewables' Tangy Wind Farm will replace its existing 22 turbine, 18.7 MW generating site with only 16 turbines, generating up to 80 MW. According to RenewableUK's report [Onshore Wind: The UK's Next Generation](#), across the UK, 19 wind farm developments have been repowered, increasing generating capacity by 160% and using only two-thirds the number of turbines.
- 5.3.8. Other major advantages of repowering existing schemes include the opportunity for co-location with other renewables technologies, such as solar PV and battery storage, maximising land use through ecosystem enhancement and restoration (e.g., forestry/peatland), re-using existing infrastructure and increasing economic benefits to the local community.
- 5.3.9. Whilst our planning system is supportive of repowering, development proposals will continue to be considered on a case-by-case basis to ensure the ongoing suitability of the site for further wind farm development, taking account of relevant local and national planning policies.

5.4. Circular Economy

- 5.4.1. The Scottish Government is committed to building a circular economy and recognises it as a vital part of our journey to net zero. Increasing use of renewable technologies is resulting in a greater demand for the associated manufacturing materials.
- 5.4.2. Adopting a circular approach keeps materials in use for longer, safeguards against potential future resource shortages, and reduces the greenhouse gas emissions involved in manufacturing and transportation. It further avoids landfill costs for businesses and

reduces waste going to landfill, reducing carbon impacts through the recycling of materials and displacing virgin materials that require energy intensive processes.

- 5.4.3. The Scottish Government fully supports, and encourages, the use of recycled and refurbished turbines, recognising the enormous potential to strengthen the Scottish supply chain, reduce waste, utilise more of our local skills and capabilities and improve costs for the onshore wind sector.
- 5.4.4. Zero Waste Scotland (ZWS) is working to improve the circularity of the energy sector and provide support and advice to businesses looking to develop more circular business models, including the renewable industry. Their 2021 report '[The Future of Onshore Wind Decommissioning in Scotland](#)' estimates that as many as 5,600 turbines could be decommissioned between now and 2050 and presented numerous recommendations to both the industry and Government which would support a thriving circular economy in Scotland. Initial calculations have also identified an approximate potential emission saving of 35% from the manufacturing of wind turbines using recycled content compared to virgin materials.
- 5.4.5. At present, most component parts of onshore wind turbines are fully recyclable, except blades, which are made from composite resins and fibres that are difficult to recycle at present. However, Scotland is leading the way in in terms in circular economy innovation. Scottish company ReBlade specialise in turbine blade and nacelle decommissioning, maximising blade second-life potential and blade derived products, such as furniture. More information on the work of ReBlade can be found in [Annex 2](#).
- 5.4.6. Another Scottish company making ground-breaking strides in the supply chain is Renewable Parts. They are the first SME in the wind industry to receive funding from the [Circular Economy Investment Fund](#), and focus its efforts on reducing waste associated with wind turbines by creating a refurbishment programme that aims to decrease the carbon footprint of recycled parts by up to 80%. More information on the work Renewable Parts do can be found in [Annex 2](#).
- 5.4.7. The Scottish Government encourages the onshore wind industry, among others, to consider the refurbishment and recycling of their wind turbines and has plans to introduce a Circular Economy Bill to advance Scotland's ambitions for the circular economy through measures which will encourage reuse of products and reduce waste.

- 5.4.8. The proposed Onshore Wind Strategic Leadership Group and upcoming Onshore Wind Sector Deal will provide an excellent platform for both the wind industry and Scottish Government to cement their commitment to a circular economy and establish a strong ambition from the sector to support the Scottish circular economy supply chain.

5.5. Skills

- 5.5.1. In March 2022, we published the [National Strategy for Economic Transformation](#), detailing our vision for the transition to a fairer, greener wellbeing economy for the coming decade. The document sets out that investment will be prioritised in entrepreneurialism, skills, retraining and the development of new markets and opportunities, particularly in the just transition to net zero.
- 5.5.2. A 'Skilled Workforce' is one of the key programmes targeted by the strategy. Ensuring that Scotland has the skills needed to drive economic transformation by embedding access to entrepreneurial learning in schools and colleges focusing on the transition to net zero, the digital revolution, and lifelong training. The Scottish Government will make sure employers have the supply of skills they need by developing a National Digital Academy. The strategy will also help ensure new and current businesses are supported in investing in innovative ideas that could lead to new industries and quality jobs across the country.
- 5.5.3. As highlighted earlier in this document, Scotland boasts some of the most skilled energy workforce in the world. As well as supporting a transition of skills from the oil and gas industry into the renewable energy industry, the Scottish Government is committed to an economic recovery from COVID-19 that is both green and fair – where we capture the opportunities of our transition to net-zero including in green jobs, innovation and competitiveness. The need for a skilled workforce is more important than ever to enable us to meet these unprecedented challenges. We must make sure that new jobs are good jobs – underpinned by Fair Work principles, with high workplace standards and paying fair wages.
- 5.5.4. A history of oil and gas expertise in Scotland, and our existing supply chains, means that Scotland is comparatively very well placed to build on these existing skills, and provide skilled professionals to meet the increasing demands of the onshore wind sector as we transition to net zero. The Just Transition Commission's [A national mission for a fairer, greener](#) Scotland sets out, "we need to be considering how to help and support people currently working in

the [oil and gas] sector to adapt to a new future and enable them to put the skills they have developed in oil and gas towards driving our net-zero transition." Opportunities for skilled jobs will be available throughout the lifecycle of developments, from planning through to development, through operations and maintenance (O&M) to decommissioning and recycling.

- 5.5.5. Our [2022 Programme for Government](#) set out the key elements of a green recovery, and a stronger, more resilient Scotland. The document outlines the key priorities of the Scottish Government, including a commitment to improve the content and extend the scope of our [Green Jobs Workforce Academy](#) and develop a refreshed Climate Emergency Skills Action Plan by the end of 2023.
- 5.5.6. Over the period 2017 to 2020 the Scottish Government has already provided grant funding of over £320,000 to the Energy Skills Partnership to support their Wind Turbine Technician training courses. Over 600 technicians and 100 apprentices have received this training since its inception, adding to our skilled and experienced workforce and building the workforce of the future.
- 5.5.7. We have also created a £62 million Energy Transition Fund targeted at projects, identified by the sector and regional partners, which will accelerate energy transition and respond to the dual challenges of commodity downturn and COVID. Taking a place-based approach, we are working to ensure this investment supports and creates local jobs and benefits wider supply chains across Scotland.
- 5.5.8. As such, grants within the Energy Transition fund will apply the Fair Work First criteria, which asks employers to commit to:
- appropriate channels for effective voice, such as trade union recognition
 - action to tackle the gender pay gap and create more diverse and inclusive workplaces
 - payment of the real Living Wage
 - no in-appropriate use of zero hours contracts, and
 - investment in workforce development.
- 5.5.9. Our Just Transition Plan makes clear the Scottish Government's commitment to developing our economy in a way that brings Scotland's citizens with us, and we believe that onshore wind will play a significant role in that journey.

5.6. Tourism

- 5.6.1. Tourism has an undeniable role in delivering Scotland's wider economic strategy and just transition, especially as we recover from

COVID-19. Tourism is capable of sustaining many of Scotland's local economies; creating jobs, adding vibrancy and enhancing our places, and helping to improve our health and wellbeing.

- 5.6.2. The [Scotland Outlook 2030](#), published in March 2020, sets out a bold new approach that will see tourism act positively in the common interest of Scotland's communities, businesses and visitors. It recognises that the role of tourism has changed as a result of our climate crisis, advances in technology, EU exit and changes in consumer behaviour which is reflected in the demands of today's traveller.
- 5.6.3. The tourism sector represents a significant consumer of energy, and the Scotland Outlook 2030 recognises and acknowledges the need to reduce the sector's environmental impact and its inevitable contribution to net zero targets.
- 5.6.4. VisitScotland [research](#) does however indicate that visitors aspire to be more responsible, both in terms of their personal and environmental impact. VisitScotland's [Trends 2020 Paper](#) identified that travellers are now seeking to consciously off-set the carbon impact of their travel. The use of sustainable energy by local businesses may therefore appeal to this type of traveller and promote Scotland as an environmentally friendly and climate conscious country to visit.
- 5.6.5. The Scottish Government is aware that some communities in Scotland are concerned that the deployment of onshore wind can have a negative effect on tourism. Current evidence suggests that whilst there may be discrete impacts in some cases, this is not the general rule.
- 5.6.6. As was noted in the section covering shared land use, Scotland's available land has a variety of demands that we need to balance if we are to meet our net zero targets. We consider the effect that onshore wind farms can have on local and national tourism as a significant opportunity to cultivate a 'people and place' approach and provide economic opportunities in areas that may otherwise be overlooked. The Scottish Government is keen to see more developments in Scotland with similar recreational or community-based provisions.
- 5.6.7. There are already many examples of renewable energy schemes boosting tourism across Scotland, be it [Whitelee Wind Farm](#) on the outskirts of Glasgow, providing additional outdoor recreational activities on over 130km of tracks; or the [Soirbheas Community](#)

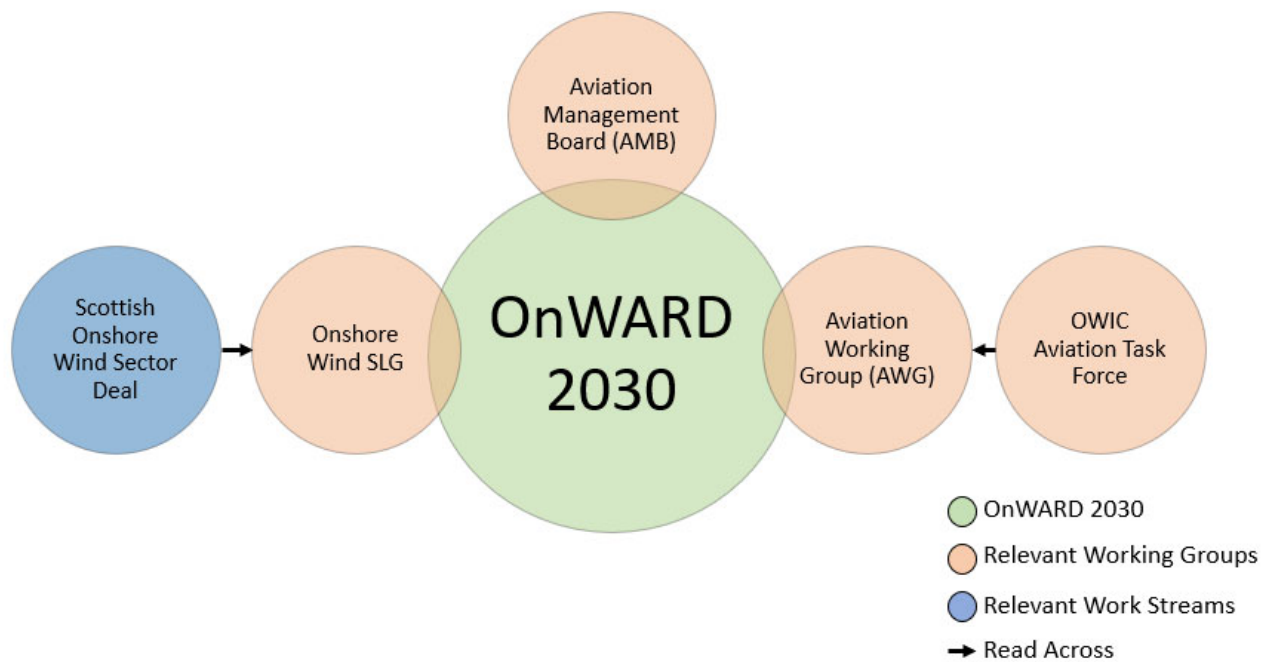
[Group](#) who reinvest revenue from renewable energy schemes into a range of projects to benefit their communities.

- 5.6.8. The [Hagshaw Energy Cluster](#) have worked to produce a Development Framework for the Hagshaw Cluster area, working in partnership with landowners, communities, local businesses and the main development partners of NatureScot, East Ayrshire Council, South Lanarkshire Council, 3R Energy, ScottishPower Renewables, Energiekontor, Octopus Renewables, BayWa.re, LUC and Ventient Energy. This Development Framework identifies opportunities to enhance and invest in the local environment, communities and place and more details are available at [Annex 3](#).

Chapter 6: Onshore Wind and Aviation Considerations

6.1. Aviation

- 6.1.1. As noted in both the 2017 Onshore Wind Policy Statement, and the 2021 draft Onshore Wind Policy Statement (dOnWPS), wind turbines have the potential to impact aviation operations, including, but not limited to, impact on aviation radar.
- 6.1.2. Bespoke solutions which alleviated specific, individual objections have been deployed successfully over the last decade or more, releasing significant volumes of renewable generation. However, the pace of deployment necessitated by the climate emergency means we must find a way to alleviate these impacts in an effective, efficient and timely manner. It is also important that solutions are cognisant of the cost of deploying renewable energy, particularly given the need to focus on both security of supply and low-cost generation, given the current international and economic situation.
- 6.1.3. As part of the dOnWPS, we consulted upon the proposal of an “Aviation and Renewables Collaboration Board”, a high-level group which would map the opportunities, risks and challenges associated with the continued development and co-existence of these two industries, as we transition to net zero. The net zero transition will affect all industries in the UK, and a strong and thriving renewables sector can potentially aid the decarbonisation efforts of adjacent sectors.
- 6.1.4. We received useful feedback on this proposal as part of the consultation exercise for the dOnWPS, emphasising the need to keep aviation safety as paramount, as well as helpful feedback on the focus of such a group. The Onshore Wind Aviation Radar Delivery 2030 group (OnWARD 2030) has been formed by RenewableUK, at the request of the BEIS-led Aviation Management Board, and the Scottish Government is an active member of this group, committed to its outcomes and deliverables.
- 6.1.5. The group has a clear reporting structure and interdependencies, ensuring effective communication with other groups in this space to reduce duplication of effort and efficient use of resources.



6.1.6. The Vision for OnWARD 2030 is:

OnWARD 2030 will build on the prevailing environment of co-existence between the onshore wind and aviation sectors. Through a focus on both policy delivery and the implementation of technical solutions; OnWARD 2030 will support the commitment of government to a just transition to a net zero economy. This will be achieved through partnership working with the renewable industry, the aviation industry and government.

6.1.7. The Scottish Government believes that that OnWARD 2030 will effectively build on the existing collaborative environment with our aviation colleagues, with a focus on net zero and delivery. The Terms of Reference of the group are available at [Annex 7](#).

6.2. Aviation Lighting

6.2.1. Aviation lighting is becoming a more prominent issue as it is a regulatory requirement to be affixed to any structure of 150m or greater to maintain aviation safety standards. As tip heights for onshore continue to increase, and tips below 150m become obsolete, this could have a significant effect on the development of onshore wind, and stakeholders hold different views on how to resolve this.

6.2.2. Work is already underway on technical and airspace-related solutions to these issues, and we do not wish to duplicate this or

place any additional burden on those undertaking it. The Scottish Government therefore opted to set up a short-term working group tasked with developing practical guidance on the assessment of the aviation lighting aspects of wind farm proposals, which can be used by members of industry, statutory consultees and decision makers alike.

- 6.2.3. The Aviation Lighting Working Group (AvLi) have spent the past 18 months considering the issue and have developed draft guidance focussed on delivering consistent methods, practices and recommendations to aid in assessing these impacts.
- 6.2.4. The draft guidance is out to consultation with relevant stakeholders and we expect to have a final version of the guidance published by the end of Q2 2023.

Chapter 7: Onshore Wind and Technical Considerations

7.1. Abnormal Loads and Police Escorts

- 7.1.1. As we increase the volume of onshore wind in Scotland, and see the real and tangible benefits of this, we will increase the volume of turbine components which must be conveyed to site. Abnormal Indivisible Loads are, by definition, a load being carried on a public road which exceeds a defined length, and hence could prove hazardous. Given the nature of wind turbine components, the movement of these parts will frequently trigger the Abnormal Indivisible Loads requirements.
- 7.1.2. Under the Road Traffic Act 1988, any abnormal load movement on public road in Scotland must be escorted by a specially trained police officer. This puts additional pressure on both Police Scotland and hauliers, as well as the wind energy sector's ability to deploy at scale in Scotland.
- 7.1.3. In order to meet our legally-binding net-zero targets, it is estimated that 3400 turbines will be installed in Scotland between now and 2030, this is the equivalent of a new turbine being installed every day between 2025-2030. Given this, and the significant issues surrounding the transportation of components, this issue has been brought into fresh focus, as we consider it could have serious implications on the delivery of our renewable energy pipeline and subsequent threat to our 2030 net-zero targets.
- 7.1.4. To this end, the Scottish Government is working directly with senior members of Police Scotland and the renewables and haulier industries. We have come together to consider this issue and to determine what actions must be taken, both short term and long term, to relieve the pressure on Police Scotland resources to ensure turbines components can be efficiently and effectively conveyed to site. This is being undertaken through a series of working groups:
 - **Practitioners Group**
(Scottish Government, Police Scotland, SR, OEMs, RUK, Hauliers)
 - **Stakeholders Group**
(Scottish Government, Police Scotland, SR, RUK)
 - **Abnormal Loads Legislative Reform (ALLR) sub-group**
(Scottish Government, Police Scotland, SR, RUK, Legal representatives)
- 7.1.5. Following the 2004 amendment to the Road Traffic Act, Traffic Officers have powers to stop and direct vehicles on public roads in

England and Wales. Such an approach could help in alleviating the pressure on Police Scotland, but any proposal to broadly mirror this approach, would cover a relatively complex legal landscape with a number of legislative competency boundaries which are untested in this regard.

- 7.1.6. To further consider this complex issue, the Scottish Government have formed 'The Abnormal Loads Legislative Reform Sub-group', in collaboration with Scottish Renewables and Police Scotland. The group is exploring potential options for legislative change in Scotland to allow abnormal loads to be moved more efficiently. This will be a potentially complex and time-consuming process which will have implications and benefits far beyond the transportation of wind turbine components.
- 7.1.7. One of the first actions of this group has been to produce an Abnormal Loads Fact Sheet which establishes the current legal position and answers some common questions and misconceptions. This will ensure all impacted parties have the same understanding and will prevent duplication of effort. A copy is available in [Annex 6](#), and the minutes and other documentation relating to this group can be accessed on the [Scottish Renewables website](#).

Abnormal Loads and Oversail Considerations

- 7.1.8. The Scottish Government is aware of the related, but separate issue of "oversail", when turbine components "oversail" the boundary of a road and enter the airspace of private land at pinch points along the delivery route. The financial compensation paid to landowners is becoming increasingly substantial, and as we deliver the 3400 turbines between now and 2030 the financial implications of this issue has become more pressing. The Abnormal Loads Legislative Reform Sub-group will consider matters of land-ownership and oversail as part of their overall work package.

7.2. Background to Eskdalemuir

- 7.2.1. Eskdalemuir Seismic Array is a seismological monitoring station in the Scottish Borders which forms part of the UK's obligations under the Comprehensive Test Ban Treaty.
- 7.2.2. The array's operation can be compromised by excessive seismic noise in the vicinity, which can be produced by wind turbines operating around the array.

- 7.2.3. In May 2005 the Ministry of Defence (MoD) issued a technical site direction with a safeguarding map to relevant planning authorities in England and Scotland as well as Scottish Ministers. This direction advised that any sites within 50km of the array would require consultation with MoD before determination. This 50km radius is often referred to as the 'consultation zone'.
- 7.2.4. Within the consultation zone there is an existing hard no-build area at a radius of 10km from the array – no application for windfarms can be made closer than this due to the unacceptable impact they would have at this distance.
- 7.2.5. The 2005 Styles Report recommended a limited budget of 0.336 nm of seismic disturbance would prevent the array's operation being comprised. This was followed by the 2014 work undertaken by Xi Engineering on behalf of the Eskdalemuir Working Group, which developed a spreadsheet tool enabling the MoD to monitor this budget.
- 7.2.6. The 0.336nm budget was issued on a first come, first served basis and no project has been allocated budget since 2018 due to insufficient budget availability for the next project in the queue. Any additional applications received following this were added to a 'waiting list' for MoD approval.
- 7.2.7. Unlocking potential capacity will require decisive and meaningful action from the Scottish Government, UK Government and MoD. To do so, we must recognise:
- Safeguarding of the array lies within the MoD policy remit.
 - Maximisation of renewable energy deployment lies within the Scottish Government policy remit.
- 7.2.8. We are aware that the MoD's policy for budget allocation is due to be reviewed and the Scottish Government remains engaged with MoD as they determine next steps for developing policy on this matter.
- 7.2.9. Looking to Scottish Government policy, through a [series of technical evaluations and studies](#), we identified that the algorithm used by the MoD to calculate the budget takes a conservative approach and, by design, over-estimates the seismic contribution of each wind turbine.
- 7.2.10. The Scottish Government are engaging with MoD to approve the data collected and are seeking agreement that MoD will adopt this evidence-based approach and adjust the calculation for budget utilisation.

- 7.2.11. It is important to note that, if MoD do accept the findings of these technical studies, the limited 0.336nm budget will remain unchanged.
- 7.2.12. Following these conversations and reflecting on the results of the recent draft Onshore Wind Policy Statement consultation, as well as the multi-phased technical work, we intend to finalise our approach to maximising renewable deployment within the 50km consultation zone as soon as possible following of the publication of this statement.

Chapter 8: Onshore Wind, Energy Systems and Regulation

8.1. Introduction

- 8.1.1. Electricity policy and regulation are reserved issues, and the responsibility of the UK Government and the independent energy regulator, Ofgem – with whom the Scottish Government will continue to engage closely across several key areas.

8.2. Network Planning/Delivery

- 8.2.1. Delivering our ambition of 20 GW of onshore wind by 2030 will create demands on our electricity infrastructure. New developments will need to connect quickly to Scotland's distribution and transmission networks. Networks must be able to invest quickly and ahead of need in order to ensure swift and efficient connections for onshore wind developments.
- 8.2.2. The 'connect and manage' system has supported significant growth in clean, low-cost renewable capacity. However, the misalignment between rapidly increasing constraint costs and the long lead time for transmission investment is placing increased risk on consumers in an already challenging landscape.
- 8.2.3. [National Grid Electricity System Operator](#), the GB Electricity System Operator, has identified the need for over £21bn of investment in GB transmission infrastructure to meet 2030 targets. Over half of this investment will involve Scottish Transmission Owners SSEN and SPEN.
- 8.2.4. Delivering network infrastructure at the pace required, will require agile regulation working in coordination with well evidenced policy drivers and efficient consenting and planning processes. The Scottish Government is working closely with Scottish Transmission Owners and National Grid ESO through our Major Electricity Projects Group (MEPG) to identify and address barriers to delivery of the transmission infrastructure required to support our transition to net-zero.

8.3. Network Charging

- 8.3.1. We know that transmission charging remains a barrier, and a particular disadvantage, for onshore wind projects located in Scotland. These charges and this system reflect an approach whose logic and design has been overtaken in large part by the global climate emergency, and the essential role of onshore wind

and other forms of renewable electricity in decarbonising energy demand across our society and economy.

- 8.3.2. Ofgem's minded-to position following its recent review of access and forward-looking charges has signalled that it still intends to apply Transmission Network Use of System (TNUoS) to small (less than 100MW) distribution-connected generation, which could be particularly detrimental to Scottish renewable developments and to investment in new onshore wind capacity.
- 8.3.3. In a net zero world, it is counterproductive in the extreme to care more about where generation is situated than what type of generation it is. A new approach is needed here, rather than small modifications to methodologies. We will continue to raise this with Ofgem and the UK Government and push for a fairer solution that recognises the renewable capability of Scotland.
- 8.3.4. We are therefore deeply concerned by some stakeholder proposals to introduce Locational Marginal Pricing in the GB wholesale electricity market. The UK Government's [Review of Electricity Market Arrangements](#) presents an opportunity to reflect on the structure of the market and consider what we can do to ensure it serves the best interests of consumers and delivery of net zero.

8.4. Security of Supply & Storage Potential

- 8.4.1. We believe that onshore wind can play a greater part in helping to address the substantial challenges of maintaining security of supply and network resilience in a decarbonised electricity system. This will mean an increasing ability to provide some of the services and responses that are currently provided by thermal generation, and market / regulatory arrangements which can incentivise and support such outcomes.
- 8.4.2. The Scottish Government has helped enable a project which underlined some of the potential here. We provided £550,000 to support a demonstration project delivered by ScottishPower Renewables at its [Dersalloch Wind Farm](#), looking at the potential for delivering Black Start (the ability to re-energise the GB electricity system after a total blackout) from wind. The project delivered a global first during a test in October 2020 by delivering black start capability from wind power to re-start part of the electricity system.
- 8.4.3. More innovation of this kind can help onshore wind to play as full a part as possible within a net zero electricity network. However, there

are other means by which onshore wind output can be managed and help assist the operation of the system.

- 8.4.4. These include the potential of co-location with hydrogen electrolyzers. The renewable hydrogen produced from such processes can serve a number of highly valuable purposes; in addition to greatly reducing network constraint payments and costs, the renewable hydrogen produced could help meet demand for zero carbon heat and transport as well as being used to generate electricity and provide vital flexibility at key strategic locations on the network.
- 8.4.5. We have already seen an increase in onshore wind developments co-located with battery storage facilities and, as we continue to progress towards the decarbonisation of our energy system, battery storage will be more and more prevalent. On-site battery storage not only reduces pressures from the grid, but enables more locally focussed energy provision, and reduces costs to consumers.
- 8.4.6. The Scottish Government will continue to support the co-location of both battery storage and hydrogen production facilities with onshore wind developments to help balance electricity demand and supply, add resilience to the energy system and support the production of renewable hydrogen to meet our future demands.

8.5. Hydrogen

- 8.5.1. Our [Hydrogen Action Plan](#) (published on 14 December 2022) sets out the actions necessary to implement the ambitions in our [Hydrogen Policy Statement](#). These actions will help put us on the pathway to becoming a leading hydrogen nation by 2045 in the production of reliable, competitive, sustainable hydrogen. The Action Plan is supported by a £100m capital funding programme, designed to accelerate and maximise the production of renewable hydrogen in Scotland to meet our target of 5 GW of renewable and low carbon hydrogen production by 2030 and 25 GW by 2045.
- 8.5.2. We will continue to work with key stakeholders to evaluate the most advantageous locations for hydrogen electrolysis to reduce electricity constraints and deliver maximum value. A [report on the assessment of electrolyzers](#) was published in October 2022.
- 8.5.3. We see the growth of renewables and a hydrogen economy as complementary; we need a strong renewables sector to support the development of a range of small and large scale renewable hydrogen projects. Scotland's huge potential for renewable energy generation complements our ambitions to produce industrial scale

quantities of renewable hydrogen for domestic use and export. Scaling up renewables and hydrogen production will be key to unlocking Scotland's potential to be a leading exporter of hydrogen to the rest of the UK and Europe.

- 8.5.4. A strong onshore wind sector will support the development of a range of small and large-scale renewable hydrogen projects. As these hydrogen production projects come online they will assist the efficiency of the energy system by addressing renewable intermittency with production by electrolysis at times of excess electricity supply.
- 8.5.5. Hydrogen is set to play a significant part in the decarbonisation of our global energy system. A combination of increased renewable electricity, energy efficiency and hydrogen will be required to decarbonise the most difficult parts of our economy including industry, transport and power. We will seek to build on our evidence base to support the steady growth of renewable hydrogen production from onshore renewables.

Conclusion

Deployment of onshore wind is mission-critical for meeting our climate targets. As an affordable and reliable source of electricity generation, we must continue to maximise our natural resource and deliver net-zero in a way that is fully aligned with, and continues to protect, our natural heritage and native flora and fauna.

Our renewed commitment to this technology will ensure we keep leading the way in onshore wind deployment and support within the UK. We are establishing a clear expectation of delivery with our ambition for a minimum installed capacity of 20 GW of onshore wind in Scotland by 2030 and providing a vehicle for that delivery through the creation of our Onshore Wind Strategic Leadership Group.

Onshore wind will remain an essential part of our energy mix and climate change mitigation efforts, but we are also in a nature crisis. Onshore wind farms must strike the right balance in how we care for and use our land, and we expect the onshore wind industry in Scotland to take up the following challenges:

- Showcase considered schemes that will not just mitigate impact but also improve and enhance our natural environment - identifying opportunities to secure positive outcomes for peatlands, forestry and biodiversity.
- Embrace bespoke management plans which incorporate industry-wide advances in thinking as well as site-specific knowledge to ensure the optimum outcome.
- Actively engage with relevant authorities, agencies and government to ensure effective collaboration as we work together to support our net zero and nature ambitions.

We trust industry to embrace the principles of a just transition to a net zero economy, ensuring that communities across Scotland feel the benefits of this transition. Our community benefits and shared ownership good practice principles provide a clear benchmark for the sector, and we must ensure that industry continue to deliver on these expectations.

The Scottish Government also expects all onshore wind developments in Scotland to support our national and local supply chains, capitalising on the opportunity to secure significant increases in local content, increase our skilled workforce, see greater diversity and for our energy sector to continue to boost our local economies.

As onshore wind is deployed at greater volume over the coming decade, we must collectively maximise the economic, social and environmental benefits in a way that meets the needs of Scottish citizens and our future generations.

Annexes

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Annex 1: Best Practice Examples: Enhancing the Natural Environment

Habitat Management and Peatland Restoration – A Developer Experience – SSER

Scottish and Southern Energy Renewables (SSER) are working to tackle climate change and biodiversity decline in unison. They are developing and maintaining renewable energy assets whilst taking steps to build and maintain their sites in harmony with nature.

Over the last two decades, SSER have implemented Habitat Management Plan's (HMPs) on their wind sites, learning valuable lessons and refining HMPs to provide increased nature conservation benefits. These HMP's are carefully constructed by using the application Environmental Statement (ES) information to identify the key sensitive environmental receptors; focusing aims and objectives to ensure those receptors are maintained and enhanced. Monitoring is an integral part of their HMPs to inform baseline levels and measure success against.

This approach focusses on creating and enhancing habitats for species to thrive, with a commitment to halting biodiversity decline and seeing increased resources being used to create and restore valuable habitats such as peatlands. The benefits of restoring peatlands are multifaceted and can include benefits to biodiversity, carbon sequestration and water resources (quality and flooding).

To realise these benefits peatland habitats need to be healthy and in good condition. SSER routinely develop their wind sites in upland areas and are committed to realising the benefits from peatland restoration and contribute to national government restoration targets, to reverse the declining condition of Scotland's peatlands. At present, NatureScot (2020) estimate that 80% of Scotland's peatlands are in a degraded state. SSER's aim is to leave our sites in a better state than they were found.

Dunmaglass Wind Farm Peatland Restoration Case Study

Dunmaglass Wind Farm Limited is owned in a Joint Venture with Green UK Wind Plc and SSE. As part of the Planning Condition and Section 75 Agreement for the site, there is a Nature Conservation Management Plan (NCMP). One of the aims of the NCMP is to improve the overall quality of the blanket bog habitat within the Site.

This work began in 2017 with Drumclog Plant Ltd. blocking hill drains in NCMP Unit B (a control area away from the wind farm on the wider Dunmaglass estate). The blocking of these hill drains will hold more water on the hill thus

improving the conditions for blanket bog habitat restoration by providing the suitable conditions for cotton grasses and peat forming sphagnum mosses to grow.



Plate 1: Ditches blocked at Dunmaglass Nature Conservation Management Plan (NCMP) Unit B in 2017.

In October 2019, further work began to improve the quality of the habitat. This time through complex peat hag reprofiling and peat pan restoration within NCMP Unit A (the wind farm site). There were no conventional hill drains present to block but extensive areas of eroding peat has to be addressed.

To achieve high quality industry leading peatland restoration, SSER contracted Strath Caulaidh Ltd (SCL) to advise on the latest innovative restoration techniques. SCL are the specialist contractor being utilised by the estate and Monadhliath Deer Management Group (MDMG) to undertake peatland restoration funded by the NatureScot Peatland Action Fund on wider landscape scale restoration within the Monadhliath region. By utilising SCL, SSER ensured consistency of approach between the SSER and Peatland Action funded restoration.



Plate 2: Excavators used for the peatland restoration.

In 2019, SSER employed 50 machine days, with two Low Ground Pressure (LGP) machines working on site simultaneously. A period of 40 days of peatland restoration were completed with approximately 20ha of peathag gullies reprofiled. The peatland restoration at Dunmaglass Wind Farm is an annual commitment, with 24ha of restoration completed in 2021 and roughly the same targeted in 2022.

Plates 3 and 4 show examples of an area before treatment and after treatment. Reprofiled peathags which have firstly been re-graded then covered with large 'carpets / blankets' of donor turves overlaid to prevent any further erosion. It can also be seen how small dams and bunds have been created in the gully to slow the flow of water and rewet the site, providing suitable habitat conditions for blanket bog vegetation to colonise and valuable foraging habitat for upland birds.



Plate 3: Before peatland restoration, note bare peat, vertical peat walls and eroded gully.



Plate 4: After peatland restoration, note the higher water table, cottongrasses growing in the pools and vegetation cover (reduction in bare peat).

Annex 2: Best Practice Examples: Circular Economy

Circular Economy Principles – Reblade

ReBlade is the first specialist wind turbine blade decommissioning service in the UK, and the Scottish start-up's vision is to provide a fully circular blade decommissioning solution so that windfarm owner operators can avoid the need for landfill. ReBlade has launched in advance of widespread windfarm site decommissioning, in order to pioneer industry-leading best practice in the management of blade waste, publicly and visibly demonstrating sustainable solutions.

In their first year of trading ReBlade has already diverted nearly 100 tonnes of blade waste from landfill and has successfully remanufactured commercial-scale blades into useful second-life products, such as podiums, and furniture. An innovation project to develop the world's first safety certification scheme for wind turbine derived public realm infrastructure is underway, and ReBlade has plans to deliver a fibre reclamation plant in Scotland capable of sustainably processing blade waste that is not suitable for remanufacturing.

A recent example of the circular economy approach ReBlade are leading can be seen in their collaboration with Fred. Olsen Renewables to investigate the repurposing solutions from Windy Standard Wind Farm in South-West Scotland. The repowering of Windy Standard Wind Farm will see the removal of 36 turbines, with only 8 turbines being constructed in their place.



Picture shows Cabinet Secretary Michael Matheson delivering a speech at a remanufactured blade podium.

The decommissioning of the original 36 turbines will release various materials back into the supply chain, including more than 100 turbine blades. The partnership will focus on delivering sustainable uses for decommissioned

materials within the region such as play parks, bus shelters and bike racks, as well as creating local jobs and supporting a circular economy.



Picture shows examples of furniture (table and bench) remanufactured by ReBlade from Fred. Olsen Renewables Windy Standard Wind Farm

Circular Economy Principles – Renewable Parts

Scottish company Renewable Parts is a supply chain, refurbishment, and remanufacture specialist in the wind energy industry, founded in 2011 with a particular focus on green technology innovation and continuous improvement within the circular economy industry. It's Innovation Centre, located in Lochgilphead, applies the latest techniques to restore unserviceable parts to 'as new' condition, and helps its customers to reduce their carbon footprint. This pioneering work has resulted in multiple solutions across technologies including Vestas, Siemens-Gamesa, Senvion, Nordex and GE Technologies.

Renewable Parts boast many services including inventory management solutions, aimed at improving the availability of parts, reducing lead-times and carbon emissions as well as increasing turbine availability and diverting waste and scrap away from landfill.



They are currently working with multiple organisations and academia including Zero Waste Scotland, the University of Strathclyde, Massachusetts Institute of Technology, and Highlands and Islands Enterprise to research and develop new products and processes.

In 2020, Renewable Parts were awarded the Carbon Reduction Award at Scottish Renewable's Green Energy Awards. However, their accomplishments don't stop there, as they have also:

- Moved over 130,000 items through their supply chain
- Diverted over 125 tonnes of waste since 2019
- Supplied new and recirculated parts to over 2600 turbines annually
- Reduced over 365tco₂eq of carbon emissions through component recirculation
- Supported a total of 15 local jobs and 6 graduates/apprenticeships

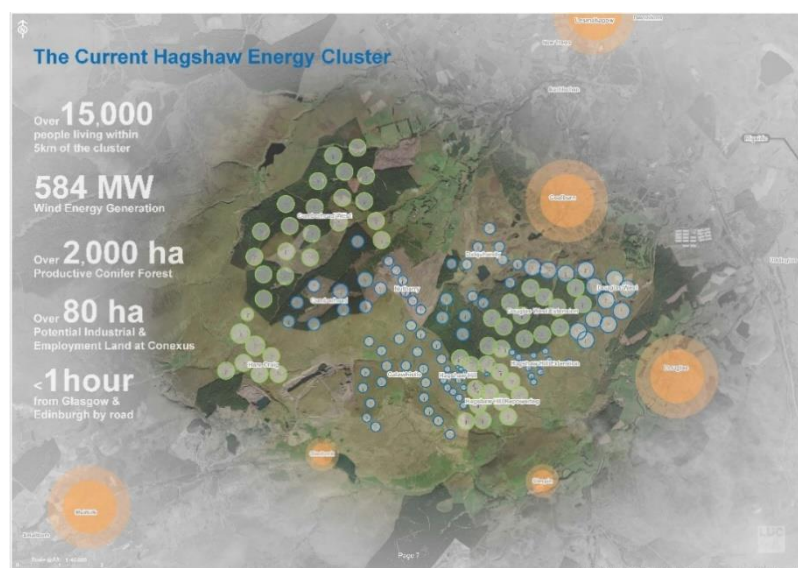
Annex 3: Collaborative Working: Hagshaw Cluster

Collaborative Working – Hagshaw Cluster

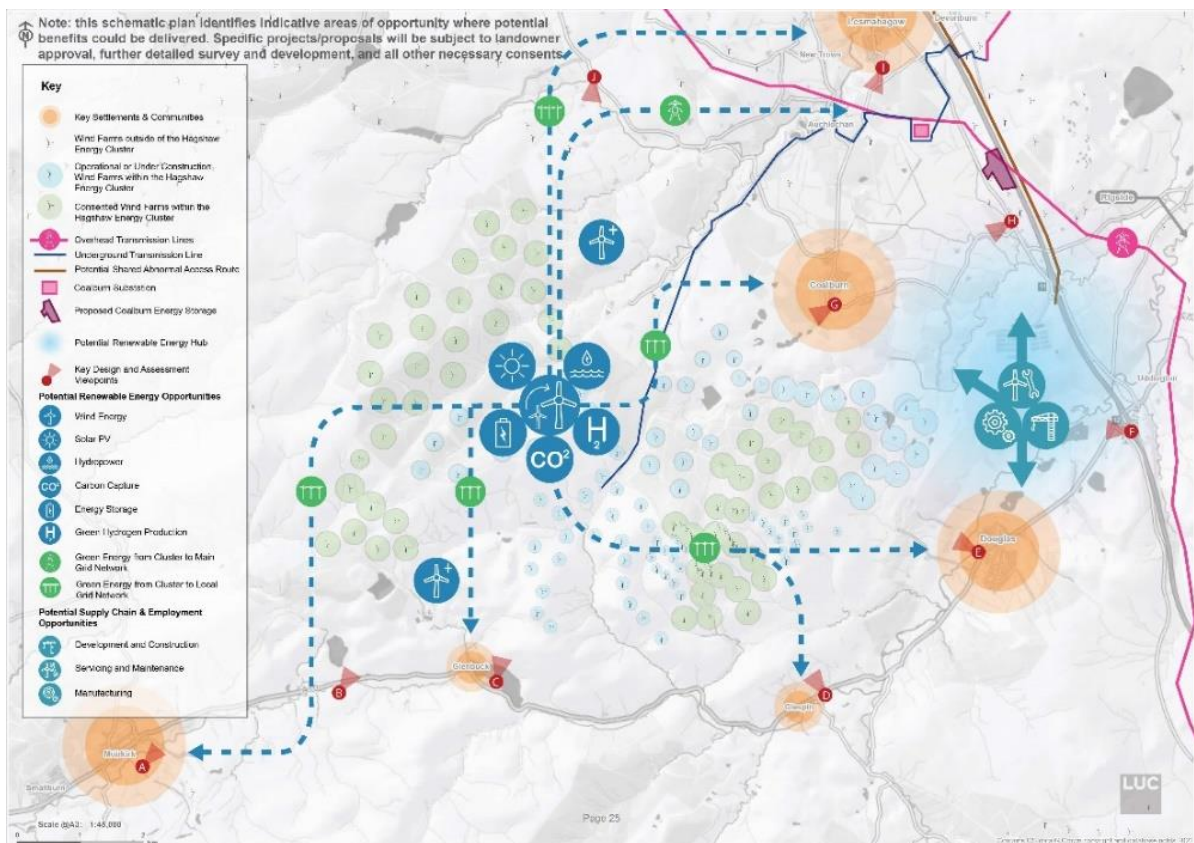
The Scottish Government is aware of the extensive work undertaken between NatureScot, East Ayrshire and South Lanarkshire Councils, working with, ScottishPower Renewables, 3R energy, BayWa.re, Ventient Energy, Energiekontor, Octopus Energy and LUC, to produce a Development Framework for the [Hagshaw Energy Cluster](#).



Picture shows first page of the Development Framework with an illustrated image of what the cluster currently looks like from an aerial view



Picture shows the current Hagshaw Energy Cluster.



This picture shows a schematic plan which identifies indicative areas of opportunity where potential benefits could be delivered. Specific projects/proposals will be subject to land-owner approval, further detailed surveys and development, and all other necessary consents.

The cluster is a collaborative project piloting a new way to plan for onshore wind energy in Scotland. The Development Framework sets out a vision for how the energy cluster will evolve between now and 2045, with the inclusion of local communities. Helping to guide the deployment of further energy generation and influence the investment of roughly £2.7million of investment through the renewable energy fund each year.

The framework is designed to support a just transition to net zero, by putting in a place a more structured approach to the deployment of onshore wind energy and other low carbon energy technologies, and established five key aims:

1. Support the efficient delivery of the renewable energy potential of the cluster, taking account of all appropriate technologies and the optimisation, extension and repowering of existing wind farms
2. Maximise the social, economic and environment benefits of renewable energy development within the cluster

3. Support the just transition to a low carbon future through a place-based approach
4. Minimise adverse impacts of development on the environment and local communities
5. Deliver investment in nature to enhance climate change and biodiversity resilience

The draft Development Framework was passed for consultation purposes by East Ayrshire and South Lanarkshire's planning committees and a period of public consultation started in October 2022.

A Development Officer has been appointed by South Lanarkshire Council to implement the Framework, with financial support from Greencoat and Naturescot.

We anticipate that this document will be formally adopted by both authorities by the end of 2022, with the Framework identifying opportunities to enhance and invest in the local environment, communities and place.



Image shows illustration depicting opportunities for peatland restoration and the delivery of other nature-based solutions in response to the challenges of a changing climate and the biodiversity



Image shows illustration depicting utilising and enhancing existing and historic infrastructure to create safe and accessible links between communities, helping people connect and feel connected with their neighbours

Annex 4: Local Energy and Shared Ownership Projects

Soirbheas

[Soirbheas](#) is a registered charity working to strengthen and support the communities of Glen Urquhart and Strathglass through revenues from local renewable energy schemes. It is well resourced, employing a team of staff, and with the capacity required for developing and delivering projects and grant programmes.

Since April 2014, Soirbheas has awarded over £500,000 in grant funding to community projects, benefiting over fifty local groups, organisations and charities in Glen Urquhart and Strathglass. Community benefit and shared ownership of nearby windfarms, and the management of funds available, has enabled the charity to act quickly and flexibly to support the needs of the local community.

Through its grant programmes, it is enabling other local organisations to take forward low carbon projects, such as the Glenurquhart Centre. In addition to supporting community projects, Soirbheas helps fund apprenticeships and has also set up two new funds in response to Coronavirus (COVID-19): an employee training fund and a community support fund. It is also committed to encouraging local food production to support and reduce food waste. Funds have also been used to invest in projects that build community resilience, such as the Glens Community Larder and Wild Foraging Trees.

The Old Luce Community Fund

The [Old Luce Community Fund](#) was established by Old Luce Community Council in 2016 and up to until October 2020, £849,088.50 had been awarded for projects to benefit the community. The Fund supports projects located within, or directly benefiting, the Old Luce Community Council area, including the communities of Glenluce, Dunragit and Auchenmalg. It receives and manages community benefit from wind farm development companies such as ScottishPower Renewables (Kilgallioch Wind Farm) and RES (Glenchamber Wind Farm). Access to the Fund has enabled a number of significant projects to be taken forward, which empower communities and strengthen the local economy including:

- Balkail Glen, an amenity wood well used by residents and with potential for small-scale wood fuel. The Fund has supported costs to transfer ownership of the wood and develop a management plan.
- A derelict site at 21 Main Street, Glenluce, a former shop which was demolished. The Fund has been utilised to purchase the site and re-develop it as a small public park with seating and a noticeboard.

- Brambles, a former café in Glenluce's main street, which closed some years ago leaving the community without anywhere to meet and socialise during the day. The Fund provided match funding for a successful bid to the Scottish Land Fund and is supporting the refurbishment of the property.
- The new village square, an unused gap site, which has been transformed into an attractive, tranquil public space with lighting, wooden benches and a covered pergola.
- A path has been created along the old railway line between Dunragit and Glenluce route linking the two villages.

The Annandale and Nithsdale Community Benefit Company

[Annandale and Nithsdale Community Benefit Company](#) (ANCBC) funded by ScottishPower Renewables community benefit fund for Harestanes Windfarm, in Dumfries and Galloway. ANCBC distributes the Harestanes Community Benefit Fund. The Fund supports rural regeneration and local community sustainability-focused charitable activities in Annandale & Nithsdale, and builds resilience to climate change risks in the area. Since opening in Spring 2015, the ANCBC fund has awarded almost £2 million to projects across the 42 community council areas that make up its area of benefit. The Spring 2022 round of awards saw over £66,000 being distributed to local projects.

The Fund has supported a diverse range of projects including community transport provision, play parks, distribution of food parcels, local sports clubs, walking groups, music events, nature projects, support for disadvantaged community members, projects to help people with mental and physical disabilities, youth support, and local galas and shows.

One of the largest grants (£49,998), was awarded to Mossburn Community Farm in January 2016 over a three-year period, to provide equine therapies for people living with mental and physical disabilities.

Since the Fund launched, ANCBC has supported 31 such community facilities across the area of benefit, with just over £380,000 distributed. These projects included new builds, maintenance, kitchen refurbishments, heating upgrades, accessibility improvements, extensions, flood prevention, replacement windows and doors, solar panels, pathways and parking facilities.

The Strathnairn Community Benefit Fund

Strathnairn Community Benefit Fund (SCBF) was set up in 2004 to receive and distribute community benefit payments from the developer of the Farr Windfarm, Npower UK (now owned by Ventient Energy) and the Farr Hydro Scheme. The key purpose of SCBF is to manage the funds and to distribute grants to support the urban or rural regeneration in areas of social and economic deprivation, in particular in the Strathnairn Community Council area.

SCBF has funded projects, including: community transport provision, after school activities for children, and running costs for community halls. It has also provided grants to make homes of residents more energy efficient, install renewables, and to help residents pay their fuel bills through The Energy Grant, which was introduced in 2015.

In 2018, SCBF committed to making a number of large capital grants from accumulated reserves to address strategic priorities that had been identified through community surveys and conversations. These priorities include supporting a community broadband initiative and major refurbishments of community halls. In the financial year to August 2021, SCBF distributed £56,990 to local projects.

Crossdykes Wind Farm

Crossdykes Wind Farm is a 48MW onshore wind power project, developed by Muirhall Energy and located in Dumfries and Galloway. Construction commenced in 2019, with completion and commercial operation from 2021. Crossdykes Wind Farm is the first example in Scotland where the community have a share in a subsidy-free wind farm. It will also deliver £7,000 per MW in community benefit fund payments each year, leading the way in developer-led community investments.

Muirhall Energy's Community Shared Ownership scheme, with the local community taking a five percent stake in the project, will ensure a significant income and is the largest community investment in renewables since 2017. Residents local to Crossdykes Wind Farm will also benefit from an annual pot of £322,000, amounting to £8 million over the lifetime of the project.

In addition, an Initial Investment Fund of £100,000 supported 32 community projects. During the construction phase, the services of 18 local businesses in the area were sought, bringing £3.4 million into the local economy. During the development and construction of the Crossdykes Wind Farm, Muirhall generated:

- £1.7 million GVA and supported 21 years of employment in the local area,

- £3.8 million GVA and 50 years of employment across Dumfries and Galloway, and
- £17.5 million GVA and 238 years of employment within Scotland.

The structure of Crossdykes community shared ownership is an approach which Muirhall are committed to replicating in other projects with shared ownership opportunities.

Annex 5: The Vision for Onshore Wind in Scotland

Following a roundtable event hosted by the Cabinet Secretary for Net Zero, Energy and Transport in September 2022, the Scottish onshore wind industry, in consultation with Scottish Government, have produced the following vision statement.

This Vision is a statement of common ground between the renewables industry and Scottish Government, and forms the basis for the Sector Deal discussions, which will begin in earnest following the first Onshore Wind Strategic Leadership Group meeting in early 2023.

Executive Summary

With Scotland's natural resources and commitment from the Scottish Government, communities, stakeholders and industry, the vision for the onshore wind industry in Scotland is a future where:

- We build on the almost 9 GW of existing capacity by constructing an additional 12 GW of new onshore wind generation by 2030
- Onshore wind continues to play a key role in decarbonising the power sector, reducing consumer costs, and ensuring security of supply whilst playing a key role in the electrification of heat and transport
- The selection of wind farm locations and technologies enables the use of the most productive modern turbines and balances the need to respect biodiversity and natural heritage
- Land use for onshore wind is optimised and combined with other initiatives including reforestation and peatland restoration, as well as providing enhanced access to green space for recreation
- New and repowering projects consistently receive high levels of public support
- High skilled and sustainable jobs are created, including long term jobs in the operations phase
- Material use is optimised, and carbon impact is minimised, through the principles of a circular economy, in turn creating opportunities in component reuse, remanufacturing, and recycling
- Community benefit and shared ownership provides lasting social and economic benefit in local areas
- Onshore wind plays a central role in ensuring a just transition for communities and people

To achieve this Vision, the Onshore Wind Sector Deal sets out how government and industry will collaborate to deliver the minimum ambition of 12 GW of new onshore wind in Scotland by 2030.

Vision Statement

Onshore wind is the biggest source of renewable energy in Scotland – of the total 13 GW of renewable energy in Scotland, [almost 9 GW is supplied by onshore wind](#). Public acceptance for onshore wind has consistently increased over the last decade with the latest [RenewableUK poll](#) noting that more than 87% of the UK public either strongly support onshore wind development or have no opinion. Scotland's abundant natural resources and policy support for onshore wind have seen us lead the way in project deployment and the resulting economic benefit compared to other parts of the UK.

Scotland's electricity use and demand are expected to change significantly as we decarbonise our energy system. As we push to electrify heat and transport, which together account for around 75% of our current energy needs, [Scotland's peak demand for electricity is projected to at least double within the next two decades](#). As we meet the challenge of this growing electricity demand we must also consider related issues such as energy security and affordability, as well as our legally binding decarbonisation targets.

Onshore wind is one of the cheapest and quickest forms of new electricity generation. Onshore wind remains vital to meeting this increasing demand, providing fast deployment whilst minimising costs to the consumer. This will be achieved by deploying the most productive modern turbines that are taller than older models, by repowering existing sites where possible, and by maximising the use of our exceptional natural wind resource where environmental effects are acceptable. These will sit in Scotland's evolving landscape among reforested hills, restored peatland, and thriving and sustainable ecosystems.

Aligning with the priority themes of nature recovery and climate change defined in [Scotland's National Performance Framework](#), industry, government, and stakeholders will work together to increase the deployment of onshore wind, leading to the establishment of areas where renewable energy generation, carbon sequestration, ecosystem restoration, and access to green space for recreation and well-being are combined in ways that create high-value and sustainable jobs

The Onshore Wind Sector Deal aligns the goals and expectations of the wind energy industry and local and national governments to successfully deliver a shared ambition for onshore wind and the wider national goals of a managed and just energy transition. With a focus on delivering the lowest cost new renewable energy quickly and efficiently, it provides the framework for making the most cost-effective and sustainable choices on technology and siting, with wind energy accepted as part of the human environment, whilst balancing the need to respect biodiversity, natural heritage, and

landscapes. Scottish and UK Governments will work together to achieve this vision, especially around the vital enabling policy areas of grid access and route to market.

The Sector Deal facilitates a significant increase in renewable energy capacity, whilst remaining committed to the principle of communities directly benefiting from developments in their local area. Community benefit and shared ownership are central to [The Scottish Government's Good Practice Principles](#), and the [Just Transition Outcomes](#), supporting the delivery of lasting social and economic opportunities for host communities and Scotland as a whole. Building on historical success, the Sector Deal seeks to maximise future positive benefits in these areas. Our commitment to onshore wind is fully aligned with the anticipated growth of its offshore sibling, leveraging opportunities for combined skills and supply chain investment.

Looking to 2030 and beyond, the Onshore Wind Sector Deal will deliver an installed capacity of at least 20 GW of onshore wind, delivering vital low carbon and lowest cost energy into Scotland's electricity grid. This will enable significantly increased investment in skills, training, and communities, helping to maximise benefits at both national and local scale. It will create the necessary pathways for long-term sustainable energy, jobs, and supply chains, identifying best practice for a circular economy in electricity generation, with an increase in our manufacturing capability.

Annex 6: Abnormal Loads Fact Sheet

Abnormal Indivisible Loads are, by definition, a load being carried on a public road which exceeds a defined length, and hence could prove hazardous. Given the nature of wind turbine components, the movement of these parts will frequently trigger the Abnormal Indivisible Loads requirements.

Under the Road Traffic Act 1988, any abnormal load movement on public road in Scotland must be escorted by a specially trained police officer. This puts additional pressure on both Police Scotland and hauliers, as well as the wind energy sector's ability to deploy at scale in Scotland.

There are several misconceptions about the legal position concerning abnormal loads in Scotland, which this fact sheet aims to provide clarity on.

Police Scotland provide detailed information on their website on moving an abnormal load, which we would recommend stakeholders review in the first instance. This is available [here](#).

Legislative Background

Stop and direct powers are primarily contained in the Road Traffic Act 1988 (the 1988 Act). Sections 35, 37 and 163 of the 1988 Act provide that the police can stop and direct vehicles, cyclists and pedestrians and require them to proceed in a particular direction and it is an offence not to comply with these directions. Following the 2004 amendment to the Road Traffic Act, Traffic Officers have powers to stop and direct vehicles on public roads, but this only applies in England and Wales.

In Scotland the 1988 Act remains unamended and hence uniformed police officers are the only individuals who can legally stop and direct traffic in Scotland.

Frequently Asked Questions – Abnormal Loads

1. How much resource is typically required for abnormal load escorts for onshore wind farms?

Every request for an abnormal load escort is assessed on a case-by-case basis in Scotland. Whilst Police Scotland do have a standard approach to this, it is not possible to estimate a set resource requirement and site-specific variations are a key consideration, such as turbine type and height and geographic considerations.

2. What does an abnormal load escort usually entail?

Escorting Abnormal Loads is not a core part of Police Scotland work and is reliant on specifically trained officers undertaking these tasks, sometimes as

overtime. What each movement will entail may vary area to area and is very much dependent on the nature of the roads being used. Safety is the predominant concern.

3. Why do different regions of Scotland have separate approaches to abnormal load escorts?

Abnormal loads must be escorted by trained, uniformed police officers in Scotland. However, what that escort consists of is based on site-specific variables which can include a range of factors such as; size and scale of the movement, minimising impacts to local communities, quality of roads system, commercial factors, traffic considerations, and maintaining health and safety, etc.

4. What is different legislatively for self-escorts of abnormal loads in Scotland compared to other regions of the UK?

Following the 2004 amendment to the Road Traffic Act, Traffic Officers (also known as Highway Officers, and are not police officers) have powers to stop and direct vehicles on public roads, but this only applies in England and Wales. In Scotland the 1988 Act remains unamended and hence uniformed police officers are the only individuals who can legally stop and direct traffic in Scotland.

5. Can there be changes to the legislation to enable self-escorts? What role do The Scottish Government, Police Scotland, and other stakeholders have to play?

Such an approach could help in alleviating the pressure on Police Scotland, but any proposal to broadly mirror this approach, would cover a relatively complex legal landscape with a number of legislative competency boundaries which are untested in this regard.

The Scottish Government have formed 'The Abnormal Loads Legislative Reform Sub-group' (ALLR), in collaboration with Scottish Renewables and Police Scotland. The group is exploring potential options for legislative change in Scotland to allow abnormal loads to be moved more efficiently. This will be a potentially complex and time-consuming process which may have implications far beyond the transportation of wind turbine components and renewable energy technologies in Scotland.

6. What can, and does, affect an abnormal loads escort resource availability?

Safety factors such as weather conditions, sickness or other unexpected absences (e.g. court requirements), haulier availability, unexpected roadworks on major trunk roads (additional permissions can be required in these circumstances), unexpected major incidents and significant pre-planned events can impact police resources.

7. What process should be followed when engaging with relevant stakeholders on abnormal load matters?

In the first instance please contact [Scottish Renewables](#) and [RenewableUK](#) with any concerns or queries relating to the abnormal load process and information on who to contact regarding specific issues. Scottish Renewables and RenewableUK will funnel the information or query provided to the relevant stakeholders or group(s). In order to prevent duplication of effort and redirection of limited resource, Scottish Government should only be contacted in relation to an abnormal loads issue when stakeholders have followed the above process and considered any response received to be unacceptable.

8. What are we doing to streamline/improve the processes around abnormal load escorts in Scotland?

The Scottish Government, Police Scotland and Scottish Renewables, in collaboration with RenewableUK, are continuing to engage with industry and hauliers via the three established groups tackling abnormal load movement escorts:

1. Practitioners Group

(SR, OEMs, Scottish Government, Police Scotland, RUK, Hauliers)

2. Stakeholders Group

(SR, Scottish Government, Police Scotland, RUK)

3. Abnormal Loads Legislative Reform (ALLR) sub-group

(SR, Scottish Government, Police Scotland, RUK, Legal representatives)

Annex 7: Terms of Reference of OnWARD 2030

Authority

The Onshore Wind Aviation Radar Delivery 2030 Group (OnWARD 2030) is run by RenewableUK (RUK) through its existing Aviation Working Group (AWG). The Group has been formed at the request of, and to support the objectives of, the Aviation Management Board (AMB) which is Chaired by the Department for Business, Energy and Industrial Strategy (BEIS) and reports to the Secretary of State for Business, Energy and Clean Growth. OnWARD will align with AMB objectives and report back to the Board.

Vision

OnWARD 2030 will build on the prevailing environment of co-existence between the onshore wind and aviation sectors. Through a focus on both policy delivery and the implementation of technical solutions; OnWARD 2030 will support the commitment of government of a just transition to a net zero economy. This will be achieved through partnership working with the renewable industry, the aviation industry and government.

Functions

The function of OnWARD 2030 is to mobilise a focussed group of public and industry experts to:

1. Work with the AMB and its members to deliver on the principles, purpose, scope and functions agreed within the AMB TOR's
2. Develop a series of feasible recommendations, which can be implemented in a timeframe which aligns with legally-binding net zero and energy resilience targets. These recommendations will not be made without first ensuring all necessary levels of safety will be adhered to, in accordance with national and international obligations and regulations.

Initially OnWARD 2030 will undertake these functions through engagement with the Department for Transport (DfT), the Ministry of Defence (MOD), the Civil Aviation Authority (CAA), NATS, BEIS and other aviation stakeholders to deliver on the initial AMB workplans and ensure a coherent approach consistent with realistic timelines. Stakeholder collaboration and engagement will sit at the heart of this work.

Formal functions of this Group are:

- 1. Working Towards Co-Existence:** Driving a change from case-by-case mitigation towards enduring co-existence between onshore wind and aviation, including civil Air Traffic Management (ATM) and MOD Air

Traffic Control (ATC) and Air Defence (AD). OnWARD 2030 will consider opportunities for regional solutions and promote greater cooperative working between parties to deliver system and cost efficiencies.

- 2. Sharing of Experience and Reducing Duplication:** Identifying where Offshore Wind Industry Council (OWIC) Aviation Workstream outcomes are transferable to the onshore environment and ensuring appropriate linkages are made. A similar approach to that taken by OWIC will likely be beneficial and OnWARD 2030 should identify whether governance arrangements from OWIC can be carried into OnWARD 2030. OnWARD 2030 will also acknowledge the different complexities, stakeholders and environment onshore wind operates within.
- 3. Cost Neutral Mitigation:** Developing a strategy and identifying the responsibilities of stakeholders in the delivery of a series of cost neutral mitigation solutions to be implemented by 2030. These solutions should not result in profit from mitigations, and the process of having a mitigation should be fair and non-revenue generating. It should also meet the needs of both onshore wind and aviation (both civil and military) requirements.

Organisation

OnWARD 2030 is a combined effort between RUK AWG members and RUK Onshore Planning Members. It is anticipated that attendance will be required from relevant aviation industry stakeholders as there must be mutual will and support between DfT and the wind industry, together with other relevant aviation stakeholders.

OnWARD 2030 is overseen by the AMB and is one of the AMB workstreams. It is driven by RUK and sits within the AWG. It will periodically update to the Aviation Management Board as well as relevant RUK Working and Steering Groups such as the Onshore Wind Steering Group and the AWG.

OnWARD 2030 is currently chaired by a member of the AWG and membership includes prominent Onshore Wind developers, Scottish Government and the RUK Aviation Policy Lead. Secretariat support is provided by RUK Aviation Policy Lead.

Rules of Engagement

To foster cooperation, open dialogue and collaborative working across Group members and other relevant aviation industry stakeholders; the following rules of engagement will be adhered to:

1. Competition law requirements will be noted at the start of each meeting and adhered to;
2. Where OnWARD 2030 stakeholders share sensitive information, these are released for the Group's information only and not to be used for

other purposes without prior agreement, nor shared beyond those that need to access them to support the workings of the Group. All commercially sensitive information should be clearly marked as such in both the sending email and any attached documents. Information shared with the Scottish and UK Governments is subject to Freedom of Information Requests, whilst exemptions exist for commercially sensitive data, any decision to withhold information could be overturned by the Information Commissioner;

3. No information is to be made available publicly without the express permission of the originator;
4. Anything bound by Non-Disclosure Agreements (NDAs) are to be adhered to.

Membership

As workstreams develop it is expected that the membership will evolve, bringing in other relevant stakeholders. The initial membership includes:

- Banks Group
- RenewableUK
- Vattenfall Wind Power
- RES Group
- SSE-R
- RWE
- ScottishPower Renewables
- Scottish Government

Voting Mechanism:

If a matter arises which cannot be unanimously agreed on, a vote may be required. All OnWARD 2030 members will have one vote. An issue tabled for voting will require a simple majority to approve. In the event of a tie, the Scottish Government will hold the casting vote.

Conduct and Frequency of Meetings

OnWARD 2030 shall meet at least every two months at a time set by the Secretariat and agreed by Group Members, with interim meetings as necessary. Supporting workshops and meetings related to the functions maybe tied to the Group or held independently.

To support modern working practises across multiple organisations, the Group will meet virtually via Microsoft Teams. If it is appropriate to facilitate in person/ hybrid meetings this will be discussed by Group Members, and in person meetings set only with their approval.

The Secretariat will endeavour to issue papers and agenda 5 working days before the date of each meeting. High level minutes and Actions of each

Board meeting will be circulated by the Secretariat within 10 working days of the following meeting.

During each meeting, agreement on the Minutes and actions from the previous meeting will be confirmed by OnWARD 2030 Members.

We Asked, You Said, We Did

We Asked

The Scottish Government published a draft Onshore Wind Policy Statement for consultation on 28 October 2021 and invited responses by midnight on 31 January 2022. The consultation sought views on Scottish Government's policy support for onshore wind, an ambition for 8-12 GW of additional installed capacity by 2030 as well as inviting views on how economic opportunity can be maximised while also protecting Scotland's natural heritage.

You Said

In total, there were 160 responses to the consultation, of which 111 were from organisations and 49 from individuals. The mix of respondents were as follows:

- Acoustics: 3
- Aviation Specialists : 5
- Communities : 18
- Government funded bodies and regulators: 7
- Legal: 2
- Lobby and interest groups: 13
- Local authorities & planners: 14
- Renewable Energy: 43
- Third sector (e.g. Charities and other NGOs): 2
- Other : 4

Total organisations : 111

- Individuals: 49

Total respondents : 160

General support was expressed in favour of the 8-12 GW ambition, though comments highlighted that a clear target would send the appropriate signal of support to industry, supply chain and communities.

However there were concerns of some areas of Scotland becoming saturated with onshore wind farms and on ensuring the best designed sites happen in the right places.

There was agreement that introduction of a sector deal would help support the realisation of environmental targets, have socioeconomic benefits, provide opportunities for a partnership approach between government and industry and provide certainty for stakeholders. Furthermore a sector deal could focus on key considerations such as:

- Tackling barriers to deployment (e.g. those caused by the grid, aviation, visual landscape, landscape change and business rates).
- Development of the supply chain (e.g. local content specification, circularity).
- Standard setting for restoration or enhancement of biodiversity (e.g. principles around deploying HMPs).
- Measures to speed up the planning and consenting process.

There was agreement that onshore windfarms can and should provide environmental benefits. These benefits could take the form of:

- Enhancement of peatland, forestry or biodiversity where there might not otherwise be the opportunity
- Compensatory planting of trees, particularly indigenous trees like native broadleaves to replace commercial forestry, citing these as preferable in terms of carbon capture, hydrology, and biodiversity
- Development of Habitat Management Plans, Land Management Plans or Environmental Management Plans, working alongside environmental agencies.

Overall there was a wide variety of views shared, split across the topics discussed in the draft statement. While the consultation gave all who wished to comment an opportunity to do so, given the self-selecting nature of this type of exercise, any figures quoted within the [consultation analysis document](#) cannot be extrapolated to a wider population outwith the respondent sample.

We Did

We reviewed all the views shared through the consultation and have reflected this in our final statement. We have committed to an ambition of 20 GW of installed onshore wind by 2030, set out proposals for a strategic leadership group which will be tasked with addressing key barriers and opportunities and are developing a sector deal for industry, agencies and communities.



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This publication is available at www.gov.scot

Any enquiries regarding this publication should be sent to us at

The Scottish Government
St Andrew's House
Edinburgh
EH1 3DG

ISBN: 978-1-80525-375-4 (web only)

Published by The Scottish Government, December 2022

Produced for The Scottish Government by APS Group Scotland, 21 Tennant Street, Edinburgh EH6 5NA
PPDAS1213482 (12/22)

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