



# Hagshaw Hill Wind Farm Repowering

Hagshaw leads the way in Scottish wind power once more

## NON-TECHNICAL SUMMARY

DECEMBER 2018





# Contents

<b>Background</b>	1
<b>Purpose of the Proposed Development EIAR</b>	1
<b>Availability of the Proposed Development EIAR</b>	1
<b>Representations to the Application</b>	2
<b>Site Location and Description</b>	2
<b>Site Selection and Design</b>	3
<b>The Proposed Development</b>	5
<b>Programme</b>	8
<b>Consultation</b>	9
<b>Environmental Impact Assessment (EIA)</b>	9
<b>Benefits of the Proposed Development</b>	18

**Figure 1** Site Location Plan

**Figure 2** Comparative Wireframes

**Figure 3** Proposed Development Layout

*Full size versions of all figures are available in the accompanying EIA Report*

This page is intentionally blank.

## Background

1. This document is a Non-Technical Summary of the Environmental Impact Assessment Report (EIAR) which accompanies an application by Hagshaw Hill Repowering Ltd (the Applicant), a subsidiary of 3R Energy Solutions Ltd, for a Section 36 (S36) consent and deemed planning consent, under the terms of the Electricity Act 1989, for the repowering and extension of Hagshaw Hill Wind Farm comprising 14 wind turbines (the Proposed Development), 3.2 km west of the village of Douglas, in rural South Lanarkshire.

## Purpose of the Proposed Development EIAR

2. ITP Energised was appointed by the Applicant to assess the environmental impacts of the Proposed Development in accordance with The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017.
3. The EIA process is reported in the EIAR, which describes the methods used to assess the beneficial and adverse environmental impacts predicted to result from the construction and operation of the Proposed Development. Where appropriate, it also sets out mitigation measures designed to prevent, reduce and, if possible, offset any significant adverse environmental impacts. An assessment of residual effects, those expected to remain following implementation of mitigation measures, is also presented.

## Availability of the Proposed Development EIAR

4. Copies of the Proposed Development EIAR are available from:

**3R Energy**

Lanark Auction Market  
Hyndford Road  
Lanark  
ML11 9AX

Tel: (01555) 660244

Email: [info@3renergy.co.uk](mailto:info@3renergy.co.uk)



5. The Non-Technical Summary is available free of charge from the Applicant, a hard copy of the EIAR Report Volumes 1 to 4 are available for £750.00. In addition, all documents are available (as a PDF for screen viewing only) on a DVD for £15.00.
6. Copies of the Proposed Development EIAR will also be available for viewing during opening hours at the following locations:

**South Lanarkshire Council**

Planning and Building Standards HQ  
Montrose House  
154 Montrose Crescent  
Hamilton  
ML3 6LB

**Coalburn Miners Welfare**

42 Coalburn Road  
Coalburn  
ML11 0LH

**St.Brides Centre**

Braehead  
Douglas  
ML11 0PT

## Representations to the Application

- Any representations to the S.36 application should be made directly to the Scottish Government Energy Consents Unit as follows:

### Energy Consents Unit

Scottish Government

4<sup>th</sup> Floor

5 Atlantic Quay

150 Broomielaw

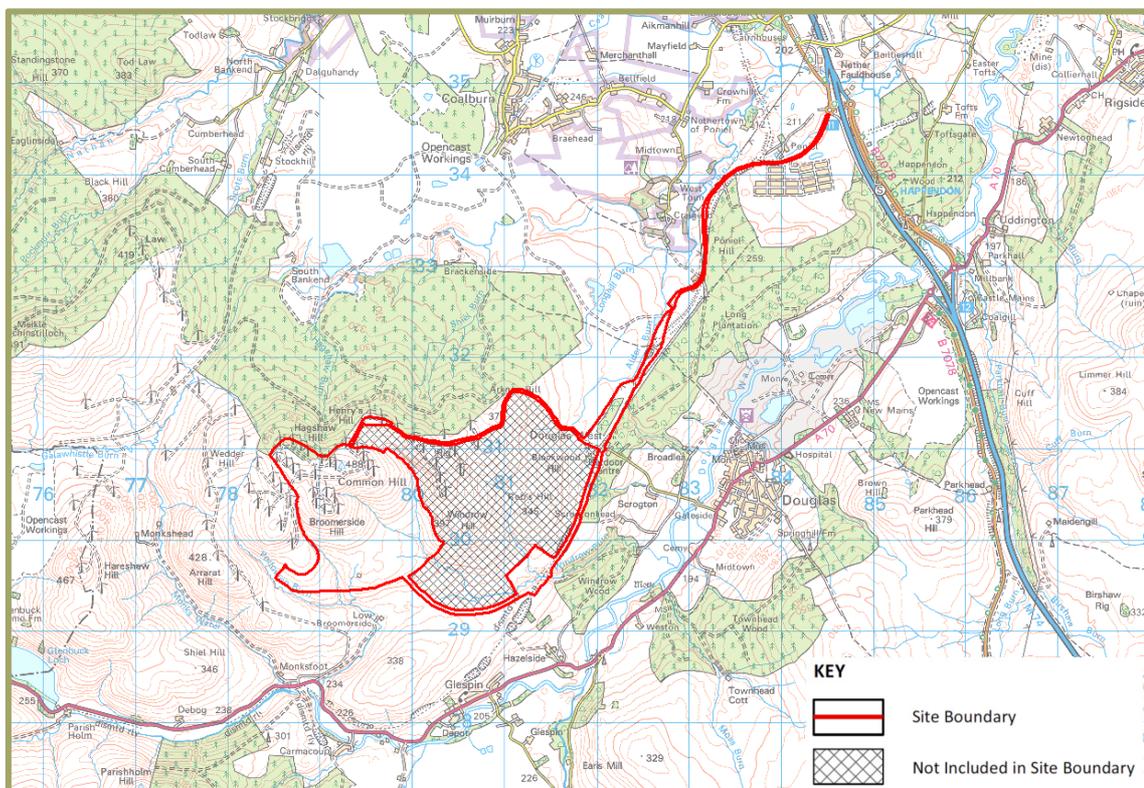
Glasgow

G2 8LU

Email: [representations@gov.scot](mailto:representations@gov.scot) Web: [www.energyconsents.scot/Register.aspx](http://www.energyconsents.scot/Register.aspx)

## Site Location and Description

- The Proposed Development site is partly formed by the existing Hagshaw Hill Wind Farm (the Existing Development), which comprises 26 existing turbines located on three hills, Hagshaw Hill, Common Hill and Broomerside Hill. The Proposed Development site also incorporates land to the south of the Existing Development, east-north east of the Galawhistle Wind Farm development.
- The village of Glespin lies approximately 1.6 km to the south of the nearest proposed turbine, and the village of Douglas approximately 3.2 km to the east. The M74 motorway is approximately 6 km east of the proposed turbines, and the site boundary incorporates two access route options from the M74 to the proposed turbine locations. The overall site area, including the access route options, extends to 275 ha. The location and wider environment of the site is shown on **Figure 1** below.



**Figure 1** Site Location Plan

## Site Selection and Design

### Site Selection

10. The site is in the ownership of William Mitchell & Sons Ltd (and associated parties) of Hazelside Farm, Glespin (part of the same family group of companies as the Applicant and hereafter referred to as the Landowner), with the exception of part of the access road from the M74 motorway which is owned by Hargreaves Land Limited and the Douglas West Bing which is owned by South Lanarkshire Council.
11. Part of the site is currently occupied by the Existing Development, operated by ScottishPower Renewables under a lease from the Landowner. The southern site area is undeveloped moorland and agricultural grazing land that is flanked on either side by the Hagshaw Hill Wind Farm Extension.
12. The Existing Development is Scotland's first commercial wind farm which was constructed in 1995 and is now nearing the end of its operational life. The planning permission for the Existing Development requires that the site is decommissioned and restored within six months of ceasing to generate electricity. As landowners of Hagshaw Hill, the Applicant proposes to repower the Existing Development as part of a phased programme of redevelopment.

### Design Process

13. As part of the EIA process design iterations were prepared and considered for the turbine locations and on-site infrastructure, including access tracks and the construction compound and substation/energy storage locations. The following principles were adopted during the design iterations made by the Applicant to ensure that the final design of the Proposed Development was the most suitable for the site:
  - ✦ the Proposed Development should avoid inconsistent turbine spacing, such as relatively large gaps, outliers or excessive overlapping turbines to minimise visual confusion and ensure a balanced / compact array from key views;
  - ✦ the positioning of turbines within the footprint of the Existing Development and southward alongside the existing Hagshaw Hill Extension, Hazelside and Galawhistle Wind Farms, limiting the southern development extent to be no nearer the A70 and valley floor than is already the case;
  - ✦ retain a separation of at least 1 km from the closest isolated residential dwellings in the surrounding area; and
  - ✦ other environmental constraints and associated buffers are to be respected.

### Alternatives

#### *Location*

14. As noted above, the Proposed Development site partly comprises an operational wind farm nearing the end of its operational life. It is therefore considered to be a suitable site for wind energy development (repowering), making use of existing site infrastructure and recognising the accepted principle of wind energy generation at the site.
15. The selection of the site area, considered appropriate for development, took account of the positioning of existing and consented wind energy development in the local area. In considering the appropriate southern extent of proposals for the Proposed Development, it was considered suitable for the Proposed Development to occupy land south of the Existing Development, alongside the Hagshaw Hill Extension and Galawhistle wind farms. A southern "boundary" was envisaged, effectively following the contours of the hill eastward from the southern-most Galawhistle turbine. It was considered that development north of that "boundary" would be appropriate and would not represent a southward encroachment of new development any nearer to the A70 and valley floor than what is already the case at Galawhistle, Hazelside and Douglas West wind farms. The Proposed Development site boundary was devised on this basis, and design iteration within that boundary progressed.

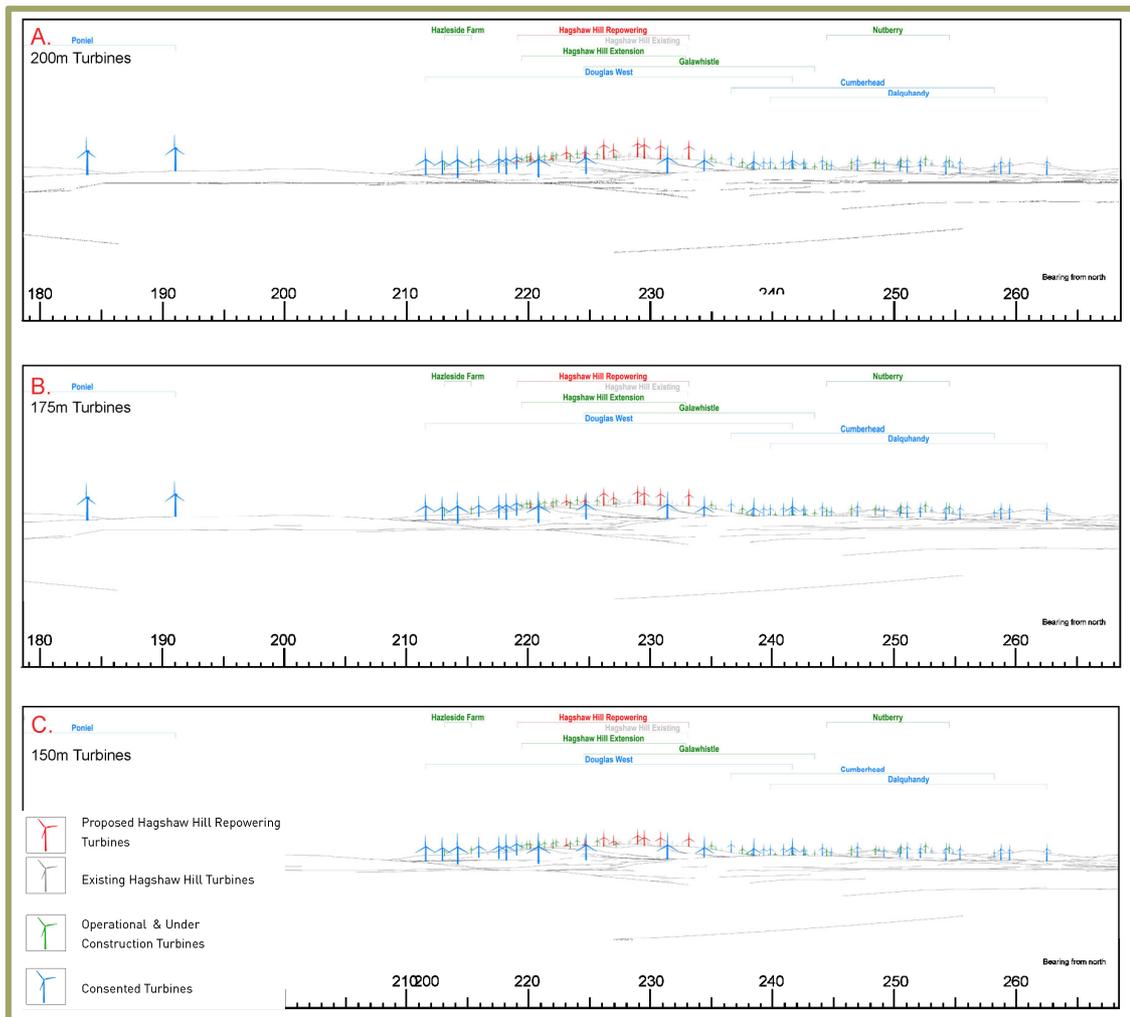
As Scotland's first wind farm, Hagshaw Hill offers one of the county's first opportunities to replace aging, first generation wind turbine technology with **modern** and more **efficient** machines which will maximise the strong wind resource available at the site. This will ensure that Scotland's first wind farm continues to make a meaningful **contribution** to Scotland's renewable energy and decarbonisation **targets** for many years to come.

### Turbine Layout and Scale

16. The Applicant has considered a number of alternative layouts and turbine scales for the Proposed Development. Turbines ranging in tip height from 150 m to 200 m have been considered, based on the availability of modern turbine models and commercial viability of the repowering project. Different rotor diameters, and therefore turbine spacings to deal with wake effects, are applicable to the range of turbine scales considered. Therefore, a number of preliminary layout options were considered, for the range of turbine scales. The preliminary layouts took account of identified technical and environmental constraints based on desk-based study and walkover survey work, as well as preliminary wind yield analysis.
17. The Applicant’s professional advisors produced and reviewed preliminary wireframes and analysed the landscape capacity of the Proposed Development site, in order to advise on the most appropriate design to maximise renewable energy generation while not resulting in unacceptable landscape and visual effects (refer to **Figure 2** below). Regard was taken in this process to the other consented schemes in the landscape near to the site and the manner in which they would already serve to create a wind farm landscape in which the Proposed Development would be sited.

### DID YOU KNOW...

The repowered site has the potential to deliver approximately **6 times** the amount of renewable power and **14 times** the community benefit of the Existing Development, from just over **half** the number of turbines.



**Figure 2** Comparative Wireframes, Viewpoint 2: M74 Overbridge

18. Optimisation of renewable electricity generation has been a key facet of the design iteration process. The Applicant has been in discussion with turbine manufacturers to establish suitable candidate turbines which would fit into the “maximum tip height” envelopes for the scenarios tested, as noted above. The review of different turbine scales and layouts established that turbines of 200 m would not give rise to effects on landscape character or visual amenity that would greatly exceed those of the 150 m turbines

consented in the immediate vicinity. It is therefore considered that the significant additional generation capacity within the same site area and from the same number of turbines – also resulting in up to £154,000 per year more community benefit – would greatly outweigh any slightly increased landscape and visual effects resulting from the installation of 200 m, instead of 150 m or 175 m turbines.

#### *On-site Infrastructure Layout Iterations*

19. Following the evolution of the turbine layout design, the design of the access tracks, construction compounds and substation was undertaken. The infrastructure required on the site was designed and arranged in such a way as to avoid the main on-site environmental constraints identified.
20. The site benefits from an existing private access direct from the M74 Junction 11, along an existing tarmac haul road and then the route of a former rail line (which would be upgraded to be suitable for construction and abnormal load delivery traffic), onto the Existing Development access road. The Applicant considered that it would be prudent to allow for an alternative access route in the event that the Existing Development access could not be used during the early stages of development, which may overlap with decommissioning the original site. Furthermore, the steep nature of the access road to the Existing Development may not be suitable for the transport of new, larger turbine components. Therefore, a new southern access track is proposed, continuing south along the former rail line then west to the south east corner of the main development area. These two routes are largely defined by existing infrastructure and have not been subject to any substantial iteration.
21. The substation, construction compound and laydown area locations have been designed to avoid sensitive habitats and historical features. Several iterations were therefore undertaken to re-site the laydown area, avoiding the archaeological asset but also seeking to avoid or minimise impact on nearby sensitive habitat (principally bog habitat to the north of the proposed T3 location). The final laydown area is partly coincident with an area of potential moderate groundwater dependent terrestrial habitat, however the groundwater at this location is not highly sensitive, and the laydown area being a temporary facility with no deep excavation work proposed, the environmental effects are considered to be not-significant.

## The Proposed Development

22. The Proposed Development (**Figure 3**) comprises 14 wind turbines of up to a maximum blade tip height of 200 m when vertical, each being around 6 megawatt (MW) in power rating. A number of ancillary development components are also proposed, including a construction compound and concrete batching area; turbine laydown area; hardstandings adjacent to the wind turbines for construction, maintenance and decommissioning cranes; access tracks; underground cables between turbines; an onsite substation and maintenance building with welfare facility; an energy storage facility of around 20 MW; an underground export cable(s) alongside the access track to J11 of the M74; and two new permanent meteorological monitoring masts.
23. The total power generation capacity of the Proposed Development would be around 84 MW. Based on a calculated site specific capacity factor, the annual indicative total power output for the site would be around 237.7 GW hours per annum, indicating the Proposed Development would generate enough electricity to power over 60,900 average UK households (based on RenewableUK, 2016 UK average domestic household consumption is 3,900 kWh), and displace around 98,061 tonnes of carbon dioxide annually (2.94 million tonnes over the proposed 30 year lifetime of the Proposed Development). The Proposed Development would contribute towards international and national targets for the generation of renewable energy and reduction in greenhouse gas emissions (further information is provided on this matter in Chapter 3 of the main EIAR).

## AT A GLANCE....

**Number of Turbines:** 14

**Dimensions:** Maximum height of 200m to blade tip

**Lifespan:** 30 years

**Generation Capacity:** Around 6 MW per turbine or around 84 MW in total

**Community Benefit:** £420k per year or £12.6m in total\*

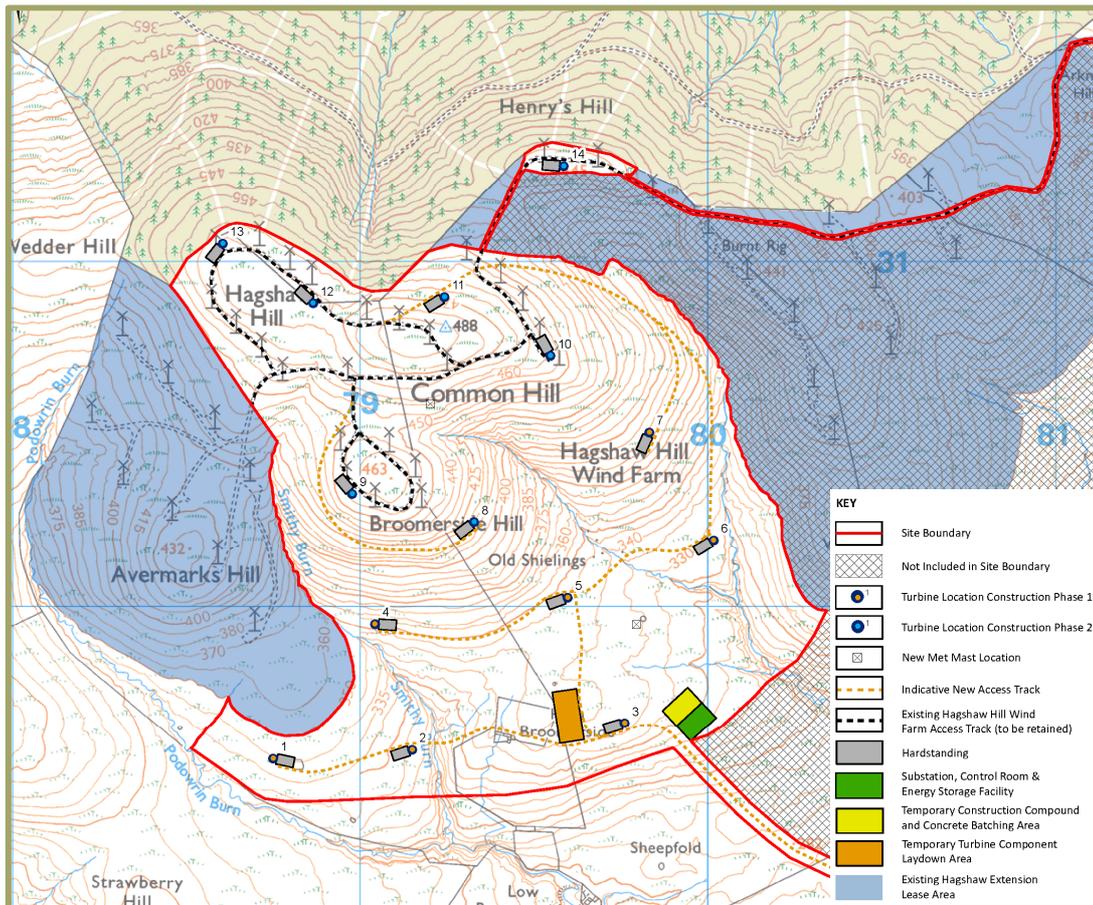
**Energy Generated:** Provide electricity for approximately 60,900 households\*

**Energy Storage:** On site energy storage facility of around 20 MW

**Access:** Via Junction 11 of the M74

*\*based on 14 x 6MW turbines being installed*

24. The electricity produced will be exported to the electricity network. The proposed point of connection to the wider electricity network is via the 132 kV Coalburn substation to the north-east of the site. The grid connection is currently being progressed by the Applicant with National Grid and Scottish Power Transmission. The electrical power produced by the individual turbines will be fed to an on-site substation via underground cables. The substation and control room building will accommodate all the equipment necessary for automatic remote control and monitoring of the Proposed Development, in addition to the electrical switchgear, fault protection and metering equipment required to connect the Proposed Development to the electricity network. Permission is being sought within this application to lay underground export cables alongside the main access track to a proposed collector substation at junction 11 of the M74. The design of the substation building and energy storage unit on site is flexible and detailed design will be provided nearer to construction.



**Figure 3** Proposed Development Layout (main site area)

25. To enable the construction of the turbines, a crane hardstanding area and turning circle at each turbine location will be required to accommodate assembly cranes and construction vehicles. This will comprise a crushed stone hardstanding area measuring approximately 50 m long by 30 m wide and will remain in place during the lifetime of the Proposed Development to facilitate maintenance works.
26. Two steel lattice tower meteorological monitoring masts will be required to monitor wind speeds for the operational life of the Proposed Development. It is proposed that these masts will be approximately 100 m in height and be located at grid reference NS 79793 29948 and NS 79200 30588 (indicative locations).
27. It is proposed that vehicular access to the site will be gained from the M74 leaving at junction 11 (Poniel). There is then a private road for access to the development site. A transport assessment (Chapter 12 of the EIAR) has been undertaken in support of the planning application for the Proposed Development and this provides greater detail on access routes to the site for construction vehicles and provides an estimate of trip generation during construction. The transport assessment includes a review of the proposed route, and construction traffic impacts.

28. There are existing onsite access tracks for the Existing Development, where possible these access tracks will be retained, re-used and upgraded (where necessary), however additional areas of new access tracks will be required. The new stretches of access track within the site boundary will be approximately 5 m wide and will cross a number of watercourses within the site.
29. A construction compound, as well as a concrete batching facility and laydown area, will be required as a control centre for all site activities and to provide facilities for the day-to-day needs of the project and the workforce. of the construction compound will be approximately 100 m long by 60 m wide and the turbine laydown area will be approximately 150 m long by 70 m wide. On completion of construction works, it is proposed that all temporary structures be removed and the compound areas be restored for agricultural purposes.

**Forward Strategy & Community Benefits**

30. During the operational period of the Proposed Development, the Applicant proposes to make community benefit contributions of £5,000 / MW of installed capacity, which means that the project would generate a £12.6 million Community Benefit Contribution (based on a total installed capacity of 84 MW) to local communities over its lifetime. The Applicant is exploring the potential to establish a Douglas Valley Development Trust which would receive community benefit income from the Proposed Development (and potentially the Douglas West Extension project) which would yield the financial resources to deliver a Community-Led Investment Strategy for each local village (Glespin, Douglas, Coalburn, Rigside and Douglas Water). To aid this process, the Applicant proposes that the Community Benefit Contribution from the Proposed Development would fund a full-time Local Development Officer who would be dedicated to the task of developing and delivering the Community-Led Investment Strategy for the area.
31. In addition to the traditional Community Benefit Contribution, the local community could also financially benefit from the Proposed Development through the participation in a shared ownership scheme. The Applicant is committed to exploring the potential to open up a revenue share in the Proposed Development to the local community, creating the opportunity for local community groups in the Douglas Valley to acquire a revenue share of up to 5% in the repowered wind farm.
32. As part of 3R Energy’s Forward Strategy for their landholding and businesses, the Proposed Development creates opportunities to develop and fund outdoor recreation infrastructure on the landholding which could act as a catalyst for the newly established Development Trust to grow an Adventure Tourism offering in the Douglas Valley, capitalising upon the significantly increased visitor numbers calling at the refurbished Cairn Lodge Service Station. A range of public access and outdoor recreation opportunities exist on the landholding that the Applicant is keen to deliver as part of the Proposed Development, including:



33. The Proposed Development represents a significant investment in the Douglas Valley and the Applicant has committed to taking a number of steps to ensure that benefits from the Proposed Development are maximised locally. The Applicant is committed to a local supplier approach that will ensure that supplier contracts are sourced locally wherever possible, sustaining local businesses and providing employment opportunities for local people. Construction companies will also be encouraged to offer local apprenticeship and work experience places during the construction phase of the Proposed Development as part of a Responsible Contracting Policy.

## Programme

34. The on-site construction period for the Proposed Development is expected to be approximately 24 months and includes a two-phase construction programme as shown in **Table 1**.
35. Normal construction hours will be between 07:00 and 19:00 Monday to Friday and 07:00 to 13:00 on a Saturday. These times have been chosen to minimise disturbance to local residents. It must, however, be noted that during the turbine erection phase, operations may proceed round the clock to ensure that lifting processes are completed safely. A fully detailed construction programme will be provided in a Construction Environmental Management Plan (CEMP) prior to the commencement of construction.
36. The operational lifespan of the Proposed Development would be 30 years, after which it would be appropriately decommissioned. It is expected that decommissioning would take approximately twelve months. If, after the operational lifespan of the Proposed Development has expired there is potential for re-powering the development, this would be subject to a new and separate application.

**Table 1** Indicative Construction Programme

Task	Month Number											
	2	4	6	8	10	12	14	16	18	20	22	24
<b>Phase 1</b>												
Mobilisation												
Access to Site & Site Tracks (T1-7)												
Cabling Installation												
Substation Works												
Crane Hardstanding (T1-7)												
Foundations (T1-7)												
Turbine Delivery (T1-7)												
Turbine Erection (T1-7)												
Commissioning & Testing (T1-7)												
<b>Phase 2</b>												
Existing Development Switch Off												
Decommission Existing Development												
Mobilisation												
Access to Site & Site Tracks (T8-14)												
Cabling Installation												
Substation Works												
Crane Hardstanding (T8-14)												
Foundations (T8-14)												
Turbine Delivery (T8-14)												
Turbine Erection (T8-14)												
Commissioning & Testing (T8-14)												
Site Reinstatement												

## Consultation

### Statutory Consultation

37. It was agreed at a pre-application consultation meeting with the Energy Consents Unit in August 2018 that the scope of the EIA was well understood by the Applicant and that a formal EIA Scoping Opinion would not be requested from the Scottish Ministers in this case. Instead, direct consultation has been undertaken with the ECU and statutory consultees, to confirm and agree the approach and scope of technical surveys and assessments on a topic by topic basis. Further information on the consultation process is given in Chapter 4 of the Proposed Development EIAR.

### Public Consultation

38. A programme of pre-application community engagement has been undertaken by the Applicant and has included various meetings, correspondence, public exhibitions and other discussions with the communities closest to the Proposed Development site.
39. The Pre-Application Consultation Report which accompanies the S.36 submission details the findings of that work and illustrates the ways in which community engagement has helped identify potential issues arising from the emerging development proposal and, where appropriate, shape the final proposal which is now the subject of this application.
40. The Pre-Application Consultation Report which accompanies the planning submission details the findings of that work and illustrates the ways in which community engagement has helped identify potential issues arising from the emerging development proposal and, where appropriate, shape the final proposal which is now the subject of this planning application.
41. In summary, feedback from the closest communities (Douglas (inc Glespin) and Coalburn) to the Proposed Development has been generally positive, with people being supportive of the change in scale between the Proposed Development and the Existing Development, in the context of the advances in turbine technology, the new financial climate for onshore wind in the UK and on seeing the visualisations prepared. Many people in Douglas in particular are proud of hosting Scotland's first wind farm (the Existing Development) and very much see a wind farm on Hagshaw Hill as part of the local landscape. A number of comments were made in respect to the Community Benefits relating to the Proposed Development and some concern was expressed about how and where the proposed funds might be distributed. The Applicant has considered these views and has proposed a number of mechanisms to ensure the Proposed Development community benefits funds are appropriately balanced and distributed, such as, by a new Douglas Valley Development Trust and a funded full-time Local Development Officer who would be dedicated to the task of developing and delivering the Community-Led Investment Strategy for the local area, which includes exploring Adventure Tourism opportunities.
42. The pre-application consultation exhibitions have helped identify the issues that are important to the local community and, where appropriate, shape the final proposal which is now the subject of this application. The Applicant confirms that the company will continue to liaise with the local community during the S.36 application process and during the construction, operational and decommissioning phases of the Proposed Development.



## Environmental Impact Assessment (EIA)

43. The EIA considers the effects of the Proposed Development during construction, operation and decommissioning on the following topics:
- ▲ landscape and visual (effects on the character of the landscape and views from agreed locations);
  - ▲ ecology (the effects on protected habitats, flora and fauna, excluding birds);
  - ▲ ornithology (the effects on birds and protected bird habitats);

- ▲ noise and vibration (effects on local properties from noise and vibration caused by the Proposed Development);
  - ▲ cultural heritage (effects on the integrity and setting of historic sites);
  - ▲ hydrology, hydrogeology and geology (the effects on surface water, groundwater, rocks and soils);
  - ▲ traffic and transport (effects from traffic travelling to, and from, the Proposed Development);
  - ▲ socio-economics, tourism, and recreation (effects on the local and national economy, local tourism businesses, and recreation facilities);
  - ▲ aviation, radar and telecommunications (effects on civil and military aviation facilities and air space and telecommunications facilities); and
  - ▲ shadow flicker (effects caused by the passing of the turbine blades in front of the sun).
44. Chapter 4 of the EIAR describes the EIA process in more detail.
45. For each topic the existing conditions (the baseline) was identified and the effects of the Proposed Development on these conditions assessed (the potential effects). Potential effects are assessed on a scale of negligible, minor, moderate and major, with effects of moderate or major deemed to be significant. Mitigation measures have then been proposed to minimise adverse effects where required. Following this, an assessment was undertaken of the effects of the Proposed Development on the existing conditions taking into consideration the proposed mitigation (the residual effects).
46. In addition to the above, the cumulative effects of the Proposed Development in conjunction with other developments in the local area, primarily other wind farms, was assessed.
47. A summary of the baseline conditions, the proposed mitigation, the resulting residual effects and the cumulative effects for each topic is provided below. Full details of the EIA for each of the topics are provided in Chapters 6 to 15 of the EIAR.

#### **Landscape and Visual**

48. The full assessment of the effects on landscape and visual receptors is provided in Chapter 6 of the Proposed Development EIAR. The site does not fall within a National Scenic Area, National Park or Regional Scenic Area, but does fall within the locally designated Douglas Valley Special Landscape Area which extends eastwards from the site across the valley associated with the Douglas Water.
49. The Proposed Development turbines would be located within two Landscape Character Types namely: *Rolling Moorland Windfarm* and *Rolling Moorland*. The 11 most northerly turbines lie within *Rolling Moorland Windfarm*; the remaining 3 turbines and the other main ancillary features of the Proposed Development lie within *Rolling Moorland*.
50. The host landscape has seen considerable change in the past 30 years and continues to evolve as a result of further wind farm development, opencast mine restoration and forestry activities. Part of the site is already recognised as a wind farm landscape and it is considered that, with the additional development now consented in the locality, this area extends much further across the local landscape. This context is highly relevant when considering the baseline against which the development is to be assessed, even once the influence of the Existing Development is set aside from the assessment, as is required by current best practice guidance.
51. The structures of the Proposed Development have been designed to avoid any existing notable landscape features and as such there would be no effect on any key existing elements of the landscape. The design of the Proposed Development is the result of a considered iterative process which has sought to minimise landscape and visual effects whilst achieving the technical and commercial requirements to ensure project viability.
52. It was acknowledged that to date only turbines of up to 150 m had been consented in the vicinity of the site and it would be important to ensure that turbines of a greater height would relate well to these other developments and would not be incongruous with the overall pattern or scale of the landscape. Through

consideration of turbines in a range between 150 m and 200 m it was established that notwithstanding the additional height of the 200 m turbines the manner in which they related to their immediate landscape context was broadly similar to that of the lower turbine heights tested. When the additional energy generation and community benefit of these turbines was considered as part of the wider design iteration exercise it was subsequently determined by the project team that they were the most appropriate way in which to proceed.

53. In the main part of the assessment, the baseline against which the Proposed Development is considered assumes the Existing Development is no longer present in the landscape. It also includes other wind farms which are operational but not those which are consented or the subject of a planning application. Notwithstanding the context of the wind farm landscape in which the site is located, as with almost any onshore wind farm development it is recognised that the Proposed Development would give rise to some additional localised significant effects on landscape character and visual amenity.
54. The Proposed Development would result in a direct significant effect on landscape character across the two relatively small and discrete areas of the character types within which the site is located. In addition, it is recognised that the Proposed Development would have a significant indirect effect in some adjoining character types up to 5 km from the site. Whilst undeniably tall structures, the underlying landform around the site is of a medium to large scale. Within this context the proposed turbines would not diminish the overall scale of the local landscape.
55. In relation to visual effects, it is accepted that the Proposed Development would be visible from various nearby properties and settlements as well as the surrounding road network, public footpaths and recreational spaces. However, it has been assessed that the significant effects on visual amenity would be localised to within approximately 9 km of the Proposed Development.
56. Of the 17 representative viewpoints considered it has been assessed that there would be a significant visual effect at 10 locations.
57. There are 23 residential properties or groups of properties within 2 km of the proposed turbines, including the village of Glespin. From Glespin the Proposed Development turbines will be screened from view by intervening landform, with only the very tops of blades visible from a few locations.
58. The residential visual amenity assessment, undertaken as part of the landscape assessment, concludes that there would be significant effects experienced at six of the assessed properties or groups within 2 km, but the residents would not experience an overbearing effect on visual amenity that would make any property an unattractive place to live or visit. It is recognised that certain other residential properties, concentrated mainly within Coalburn and Douglas, would also experience some significant effects as a result of the Proposed Development. It is noted however that a large proportion of the properties within these settlements would experience either no effect or no greater than a minor effect.
59. When considering the Core Paths, Aspirational Core Paths and Wider Network paths within 2 km of the site, some of these routes will experience significant effects where views of the proposed turbines are available. It is noted however that the mitigation measures for public access will provide significant recreational enhancement to the local area through the Proposed Development. Some significant effects have been identified from an area of local recreational activity around Douglas Castle due to the proximity to the site and the ability to gain some views of parts of the proposed turbines. The introduction of the proposed turbines would however not prevent an enjoyment of the recreational activities experienced in this landscape or an understanding of the underlying landscape which forms the setting for these activities, with the landscape of the Douglas Castle Grounds continuing to feel distinct and separate from the upper slopes of the hill ground which lies beyond.
60. The only section of road within the study area that would experience a significant level of effect is the section of the A70 within 3 km to 4 km of the Proposed Development.
61. The assessment of visible turbine lighting, during low light levels, has identified that the lighting would be screened by landform and topography from much of the surrounding 10km, in particular from large sections of the M74 and A70, with views generally seen in areas where night time lighting is a familiar element of the landscape. There would be the potential for significant effects on the character of the



landscape in the immediate vicinity of the site during low-light levels and for visual receptors who are not in the vicinity of artificial light sources in the vicinity of the A70 within up to around 3km of the site. Such an effect would however only be likely to be experienced by a relatively small number of transient receptors, as it is a sparsely populated area, with few receptors being likely to take in the view in the dark conditions away from artificial lighting.

62. The assessment of the effects of developing the Proposed Development in combination with other operational wind farms is in line with relevant guidance. The baseline in the cumulative impact assessment was therefore extended to consider other schemes that are not yet present in the landscape but are at various stages in the planning process. Accordingly, three separate scenarios were considered which reflect the different degrees of certainty that these schemes will be constructed:
- ▲ Scenario 1 - assumes that other consented (but as yet unbuilt) wind farms are operational;
  - ▲ Scenario 2 - extends this further to assume that all schemes in planning are also operational; and
  - ▲ Scenario 3 – also includes a consideration of the proposed Douglas West Wind Farm Extension, which is currently at scoping stage and the revised Cumberhead Wind Farm proposal.
63. The first cumulative scenario presents the most realistic context against which the acceptability of the Proposed Development should be considered. In this scenario, other consented (but as yet unbuilt) wind farms are taken into account in the baseline against which the effects of the Proposed Development are assessed. In this first cumulative scenario the character of the landscape context within which the Proposed Development is located would be markedly different, with these schemes collectively creating a ‘wind turbine landscape’ which would extend over the two character types within which the Proposed Development is located. In this context, the introduction of the Proposed Development would not alter the defining characteristics of the character types in the local area but would instead reinforce the existing characteristics of the baseline landscape. It is noted that in any given landscape where turbines are already present the additional effect on landscape character of introducing further turbines may not be as significant as the initial introduction of turbines. Furthermore, in general, the greater the number of turbines in the baseline landscape the less significant the addition of further turbines may be in landscape character terms as the landscape will be more heavily characterised by turbines in the baseline situation.
64. Taking this into account it is considered that in the first cumulative scenario, the effect of introducing the Proposed Development on the landscape character of the local area would be less significant than previously assessed in the main LVIA. The combined effect on the local landscape would be significant but this level of significance would occur in any event in the absence of the Proposed Development. In some cases, the addition of the consented schemes to the baseline would serve to reduce the level of effect to such a degree that it would become non-significant.
65. Within the lower lying land of the Douglas Valley Special Landscape Area (SLA), the Proposed Development would be visible alongside existing and consented turbines. However, wind energy development beyond the lower sections of the valley would not become the single most dominant characteristic of the landscape. The introduction of the Proposed Development would not increase the level of cumulative effect of wind farm development such that the combined effect crosses the threshold of the whole SLA becoming part of the wind farm landscape.
66. In terms of cumulative visual effects in cumulative scenario 1, it is noted that the Proposed Development turbines would, from the vast majority of locations, be visible in combination with and appear as part of the wider wind farm landscape and would reinforce the presence of turbines in views rather than introduce turbines into any views which are currently unaffected by turbines. Whilst the overall combined impact might be greater, the additional effects arising as a result of introducing the Proposed Development would typically be less significant than reported in the main assessment. Indeed, some of the significant effects identified in the main assessment; would reduce to a non-significant level.
67. Given the relatively high number of operational and consented schemes considered in cumulative scenario 1, the change to the baseline brought about by the other schemes in planning in scenario 2 would be minimal. Therefore, it is not considered that the cumulative effects would be discernibly greater in cumulative scenario 2 than in scenario 1 and no additional significant cumulative effects are predicted.

68. Scenario 3 considers the proposed Douglas West Wind Farm Extension and revised Cumberhead Wind Farm proposals alongside the other consented and proposed schemes considered in scenarios 1 and 2. Both the Douglas West Wind Farm Extension and the revised Cumberhead Wind Farm, would be located within the heart of the cluster of developments that are either already operational or consented in the vicinity of the site. The effect of this would be to further reinforce the scale and nature of the existing wind farm landscape in this part of South Lanarkshire that already exists to a degree and would be expanded following the introduction of the consented schemes considered previously in scenario 1.
69. The recent consents for other commercial scale wind farms are particularly relevant, as once built they will serve to create a wind farm landscape across the locality of the site. In the context of these consented turbines the Proposed Development will sit within an area already surrounded by large scale wind turbines and in this regard, would constitute an obvious continuation to the pattern and distribution of existing wind turbines in this area.
70. Wind turbines give rise to a wide spectrum of opinions, ranging from strongly adverse to strongly positive. However, in considering the effects of the Proposed Development, a precautionary approach has been adopted and it is therefore assumed that the effects identified will be adverse in nature even though it is recognised that for some people the impacts could be perceived to be beneficial.
71. It is noted that whilst the effects are considered to be long term, they are not ultimately permanent and upon decommissioning the Proposed Development the effects are almost entirely reversible. Therefore, there would be no permanent or irreversible effects on landscape character or visual amenity and these residual effects would not be significant.

#### **Ecology and Nature Conservation**

72. The full assessment of the effects on flora and fauna at the site is provided in Chapter 7 of the Proposed Development EIAR.
73. A desk based study and a series of field surveys were undertaken to establish the baseline conditions of the site.
74. There are no ecological designations within the site. It was possible to eliminate most species and habitats recorded in the study area from detailed assessment by virtue of their low conservation value, the type and frequency of field signs present, the small extent of the sensitive habitat, or the negligible scale of potential effects. Two important ecological features have been taken forward to detailed assessment: blanket bog (including wet modified bog) and *Nyctalus* bat species.
75. Potential construction effects on blanket bog (including wet modified bog) were assessed. The main effect is direct and indirect habitat loss due to land take for infrastructure. In a worst-case scenario, indirect blanket bog habitat losses, in some cases of already degraded habitat, could be up to 10.56 ha which would not reach significance at a regional level. No significant effects are predicted.
76. Potential operational effects on *Nyctalus* bats were assessed. The main effect addressed was risk of collision with turbines. Due to the largely low levels of activity recorded during baseline surveys, no significant effects are predicted.
77. Pollution prevention measures and a Species Protection Plan will be in place throughout the lifetime of the Proposed Development and will be detailed in the Construction Environmental Management Plan (CEMP). An Ecological Clerk of Works will be present during the construction phase to monitor construction works to ensure the requirements of the CEMP are met.
78. With the implementation of the mitigation measures as described, it is considered that there are no significant effects on the ecological features at the Proposed Development site.



#### **Ornithology**

79. The full assessment of the effects on birds is provided in Chapter 8 of the Proposed Development EIAR.
80. Ornithological surveys have regularly taken place for wind farm projects in the immediate vicinity of the Proposed Development over the last 15 years and as a result, a number of adjacent sites' survey areas have at least in part overlapped spatially with the Proposed Development site. The baseline data for the

current assessment, has utilised relevant data recorded for local wind farm sites as well as one season of field surveys in 2018.

81. In general, the bird assemblage recorded in 2018 corresponded with results of surveys undertaken for other wind farm projects in the local area, with few breeding target species present within the study area. Ornithological receptors taken forward in the detailed assessment were curlew and golden plover. The ornithological assessment identified habitat loss and disturbance during the construction and decommissioning phases, and displacement, collision risk and lighting effects during the operational phase, as likely effects. Unmitigated effects from construction, operation and decommissioning activities were assessed as minor adverse and not significant.
82. A Breeding Bird Protection Plan and pre-construction surveys would be set up as standard to avoid the destruction or disturbance of any nest site, with species-specific temporal and spatial restrictions around construction works.
83. With the implementation of the mitigation measures as described, it is considered that there are no significant effects, or cumulative effects, on the ornithological features at the Proposed Development site.

### **Noise and Vibration**

84. The full assessment of the potential noise and vibration effects from the Proposed Development on local receptors is provided in Chapter 9 of the Proposed Development EIAR.
85. Background noise levels in the local area were surveyed in 2012 and 2015 in connection with the adjoining (consented) Douglas West Wind Farm which was also developed by 3R Energy. Through consultation with the SLC Environmental Health department in connection with the neighbouring Douglas West project it was considered neither necessary nor appropriate to repeat the background noise measurements at any locations for a 2017 planning application to increase the tip height at Douglas West, because so many additional turbines have been brought into operation in recent years. Therefore, in accordance with industry standard noise guidance, additional background noise measurements have similarly not been undertaken in connection with the Proposed Development. Rather, data from the previous noise survey campaigns in local area in 2012 and 2015 have been used. Planning conditions were set by SLC when planning permission was granted for the neighbouring Douglas West tip height extension project in 2018, based on the same baseline noise data, and these noise limits and conditions previously set down remain appropriate for the protection of nearby receptors in respect of the Proposed Development.
86. The noise and vibration assessment has therefore been conducted on the basis that the noise limits in the planning conditions for the neighbouring, and recently consented, Douglas West Wind Farm will be appropriate to the Proposed Development. These noise conditions are considered more up-to-date and in line with best practice than the conditions attached to the Existing Development.
87. The noise levels from the Proposed Development turbines at local noise-sensitive locations were calculated using internationally recognised prediction methods and a set of robust results were then compared with the relevant noise limits. The design of the Proposed Development was found to be capable of meeting these limits. Its effect on the noise environment experienced by local residents is therefore not significant. Any effects on ground-borne vibration were also assessed as being not-significant.
88. The cumulative effects of the Proposed Development, plus all relevant operational and consented wind turbines within 5 km of the Proposed Development turbines were calculated in the same way. The cumulative assessment concludes that the increase in noise from the Proposed Development turbines over that already occurring as a result of the Existing Development, or likely to occur from other operational and permitted wind farms in the locality, will be subjectively unnoticeable at most locations, and within acceptable limits at all locations.



### **Cultural Heritage**

89. The full assessment of the effects on cultural heritage is provided in Chapter 10 of the Proposed Development EIAR.

90. To inform the Proposed Development, a baseline study was undertaken using all readily available information sources within the set parameters of Inner (the site and up to 1 km from the turbines), Middle (up to 10 km), and Outer study areas (up to 20km). The baseline study identified 29 heritage assets within the Inner Study Area, of which 23 are within the Proposed Development site boundary. A further 44 heritage assets with potential to be affected by the Proposed Development were identified within the Middle Study Area, while in the Outer Study Area, 145 heritage assets were identified.
91. Correlation between the assets identified within the site boundary and the layout of the Proposed Development identified the potential for some physical impacts to up to nine heritage assets. The predicted effect on two of these heritage assets is considered moderate, and thus significant in terms of EIA regulations. The effects on the remainder are not considered significant.
92. A programme of archaeological mitigation to be agreed in advance with the West of Scotland Archaeology Service (WoSAS). The archaeological programme of work is likely to involve evaluation, formal excavation and a watching brief as applicable. The archaeological potential for pre-improvement post-medieval features across the southern part of the site is considered high and to mitigate against impacts on unrecorded features, an archaeological watching brief will be maintained during all ground-breaking works affecting this area. Known heritage assets will also be clearly delineated by a qualified archaeologist in advance of site works.
93. Analysis of heritage assets within the three study areas showed that there would be no significant effect on the setting of individual heritage assets outwith the Proposed Development site. While some residual effects will remain, these effects are not considered significant. Equally the cumulative assessment showed that there will be no significant cumulative effects caused by the Proposed Development.

#### **Hydrology, Hydrogeology and Geology**

94. The full assessment of the effects on hydrology, hydrogeology and geology is provided in Chapter 11 of the Proposed Development EIAR.
95. The Proposed Development site is located within the Clyde River catchment, with site drainage reaching the Clyde via the Douglas Water to the south of the site and the Poniel Water to the north. The Douglas Water and the on-site watercourses feeding the Douglas Water and Poniel Water are considered within the assessment to have good water quality.
96. The rock beneath the site is typically sedimentary, forming a low productivity aquifer across much of the site. Superficial deposits comprise till or are absent, with the exception of small, localised areas of peat. A peat depth survey has identified minimal peat across the Proposed Development area, with most probes identifying no peat or less than 50 cm peat thickness. A peat slide risk assessment has identified negligible or low risks across the site.
97. Potential construction and operational effects, in the absence of any mitigation measures, include changes to the groundwater flow regime, the risk of pollution of watercourses resulting in adverse effects on water quality, effects on the integrity of watercourse banks, and localised impacts on peat.
98. Proposed mitigation measures have been outlined within Chapter 11 that will be drawn together into a Construction Environmental Management Plan prior to the commencement of construction activities. These mitigation measures are considered to be robust and implementable and will reduce the potential impacts on watercourses which have been identified as high and medium, to low. Therefore, the significance of residual effects on geology, surface water and groundwater, following the implementation of these mitigation measures, is considered to be minor or negligible and therefore not significant.

#### **Traffic and Transport**

99. The full assessment of the effects on traffic and transport is provided in Chapter 12 of the Proposed Development EIAR.
100. The Proposed Development has the potential to affect the surrounding transport network during its construction, operation and decommissioning periods. During construction, potential effects could arise from traffic travelling to and from the site delivering materials, wind farm components and plant. Access to the site is to be taken from the existing private road serving the former opencast coal mining site, connecting to the public road network at the western dumbbell roundabout of Junction 11 of the M74.

This means that no traffic from the Proposed Development will need to pass through the village of Douglas.

101. The effects of the additional traffic estimated to be generated during the construction of the Proposed Development have been assessed and considered to be negligible. No Mitigation is proposed, but 'good practice' measures will be implemented.
102. The Proposed Development will generate only the occasional maintenance or inspection vehicle during its operation and the effects of this traffic are also considered to be negligible. The number of vehicles generated during the decommissioning of the Proposed Development is considered to be less than during construction and is also considered to be negligible.
103. Potential cumulative effects could arise from the traffic generated by the Proposed Development and other consented developments. However, the traffic estimated to be generated by the Proposed Development is relatively small compared to that estimated to be generated by the consented developments. Furthermore, the traffic generated during the construction of the Proposed Development is expected to last for only around 24 months after which the Proposed Development will be operational and traffic volumes will reduce. The cumulative effects arising from the Proposed Development and the other consented developments is considered to be negligible.
104. As part of the Proposed Development, the principal contractor will prepare a Construction Traffic Management Plan (CTMP), detailing the management processes and proposed measures during the construction phase. It has been demonstrated that the impact of construction traffic on background traffic levels is negligible.



#### **Socio-Economics, Tourism and Recreation**

105. The full assessment of the effects on socio-economics, tourism and recreation is provided in Chapter 13 of the Proposed Development EIAR.
106. The socio-economic baseline indicates that the local population is relatively older than the Scottish average, and it is likely that the average age of the inhabitants will increase in the future, which may reflect a lack of opportunities for young people. Employment is concentrated in a few key sectors, such as healthcare, accommodation and food services, and transport, although there is a relative under-representation in high value sectors such as information and communication, and manufacturing. The local area is in an ongoing transition away from sectors such as coal mining and textiles, which dominated employment in the 20<sup>th</sup> century.
107. The Proposed Development will result in a substantial investment in South Lanarkshire and Scotland, and is therefore expected to generate significant economic impacts:
  - ▲ during the development and construction phase the Proposed Development would generate up to:
    - £17.1 million and 152 job years of employment in South Lanarkshire; and
    - £46.1 million and 423 job years in Scotland (including South Lanarkshire).
  - ▲ during each year of the operational phase the Proposed Development would generate up to:
    - £0.7 million and 6 jobs in South Lanarkshire; and
    - £1.1 million and 9 jobs in Scotland (including South Lanarkshire).
108. The Applicant is also committed to contributing £5,000 per MW per year in Community Benefit payments, in line with the Scottish Government guidance, which would equate to £420,000 per year based on a total generating capacity of 84 MW. The Applicant proposes that a new Douglas Valley Development Trust be established to receive Community Benefit Funding from the Proposed Development, supported by full-time Development Officer, to deliver a Community-Led Investment Strategy for the local area. The Development Officer post would be funded by the Proposed Development Community Benefit contribution.

109. This would enable the local communities surrounding the Proposed Development, such as Douglas, Glespin, Coalburn, Rigside and Douglas Water, to invest in the local area, and meet the objectives set out in their community action plans. This could involve developing the area's adventure tourism offering, resulting in increased visitor numbers and tourism-related opportunities.
110. The Applicant has also confirmed that there will be a Shared Ownership offer made to the local community, comprising an opportunity for local community groups to acquire up to a 5% revenue share in the Proposed Development.
111. The socio-economic impact of the shared ownership scheme could support up to 9 jobs and GVA (gross value added) of up to £370,000 per year, including the benefits from leveraged funding.
112. There will also be income to the public sector associated with the Proposed Development due to the payment of Non-Domestic Rates. Given the rates paid by similar development it was estimated that the annual contribution of the Proposed Development would be £0.9 million.
113. The area immediately surrounding the Proposed Development has limited tourism activity at present, and most of the nearby attractions, such as New Lanark, are a substantial distance from the site. Furthermore, there are limited driving or cycling tourist routes nearby, although there are a number of good local walking routes, including a section of the River Ayr Walkway. The Applicant has proposed community benefit and shared ownership schemes that could result in significant community investment and be used to create new assets such as a mountain biking destination or similar adventure tourism opportunities, which have been identified as potential growth areas in Scotland's tourism offering. The Applicant is also proposing the development and enhancement of the Public Access Strategy and Heritage Trail commitments that form part of the existing planning permission for the adjoining Douglas West Wind Farm.
114. This assessment did not identify any potentially significant adverse effects on the local economy, tourism or recreational assets.

#### **Aviation, Radar and Telecommunications**

115. The full assessment of the effects on aviation, radar and telecommunication infrastructure is provided in Chapter 14 of the Proposed Development EIAR.
116. Consultations have been conducted with Ofcom (via review of its online database), the licensee of the mobile phone and emergency services networks, the utilities which operate wireless data networks at microwave and UHF frequencies, Arqiva which operates microwave fixed links and off-air rebroadcast links, NATS, Glasgow Airport and Glasgow Prestwick Airport.
117. Impacts were identified to NATS and Glasgow Airport primary radars. Mitigation schemes have been identified to meet the requirements of these stakeholders, with no residual effects. Contracts will be entered into such that NATS and Glasgow Airport can provide their approval, conditional upon the implementation of the mitigation schemes prior to turbine erection.
118. No effects were identified on telecommunications or television broadcasting infrastructure.

#### **Shadow Flicker**

119. The full assessment on the effects of shadow flicker is provided in Chapter 15 of the Proposed Development EIAR.
120. This assessment considers whether the effect known as 'shadow flicker' is likely to be caused by the Proposed Development and assesses the potential for impact on sensitive receptors. Shadow flicker is the effect of the sun passing behind the moving rotors of the turbines, casting a flickering shadow through the windows and doors of neighbouring properties. This occurs in certain combinations of geographical position, time of day, time of year and specific weather conditions.
121. The study area within which properties could potentially be affected by shadow flicker covers a distance of 10 rotor diameters from each turbine and lies 130 degrees either side of north (relative to each turbine). In the case of the Proposed Development, this area extends to 1,550 m from each turbine. Within the study area for shadow flicker effects there is one property which is owned by the Applicant and will be uninhabited for the life-span of the Proposed Development. No other residential

properties lie close enough to fall within the assessment threshold. Therefore, it can be concluded that the Proposed Development will have no shadow flicker effects on residential properties.

122. As a best practice mitigation measure, turbine components will be covered in industry standard non-reflective paint to reduce the occurrence of glinting. No shadow flicker impact can occur during the construction or the decommissioning of the turbines.

## Benefits of the Proposed Development

123. The Proposed Development will deliver the following key benefits.

- ✦ The principle of a wind farm on this site has already been established by the Existing Development.
- ✦ With 12 fewer turbines (46% decrease) than the Existing Development the Proposed Development can achieve a marked increase in energy production (520% increase) through the use of new modern and efficient turbines.
- ✦ The Proposed Development would contribute to the attainment of the UK and Scottish Government policies of encouraging renewable energy developments; and in turn contribute to the achievement of UK and Scottish Government targets for renewable electricity generation. The Proposed Development, with an installed capacity of approximately 84 MW, would make a valuable contribution to such unmet targets.
- ✦ The Government has confirmed its long term commitment to the decarbonisation of electricity generation and the Proposed Development would help advance this policy objective.
- ✦ The Proposed Development would have a total capacity of 84MW, generated by fourteen ~6MW turbines which together would produce around 237.7 GWh/year of clean power which would generate enough electricity to supply over 60,940 average UK households.
- ✦ The Proposed Development is expected to save approximately 98,061 tonnes of carbon dioxide per annum, resulting in a total saving of 2.94 million tonnes over the 30-year lifetime of the development, through displacing carbon-emitting generation.
- ✦ Energy generated from renewable sources makes a significant contribution to Scotland and the UK's energy security. The Proposed Development will increase indigenous production of renewable energy in Scotland, reducing the country's reliance on foreign fossil fuels, generating wealth from our own natural resources, and improving the country's energy security. All at a time when the country's demand for electricity is set to soar with the move to electric vehicles, and it is important that the additional generation capacity to meet that demand comes from renewable sources.
- ✦ Based on an installed capacity of 84 MW, the Proposed Development will deliver £420,000 per annum in Community Benefit Funding or around £12.6m in total over its 30 year operational life.
- ✦ The Applicant proposes that a new Douglas Valley Development Trust be established to receive Community benefit Funding, supported by full-time Development Officer, to deliver a Community-Led Investment Strategy for the local villages of Glespin, Douglas, Coalburn, Rigside and Douglas Water.
- ✦ The Applicant has also confirmed that there will be a Shared Ownership offer made to the local community, comprising an opportunity for local community groups to acquire up to a 5% revenue share in the Proposed Development.
- ✦ Total construction and operational spend on the Proposed Development over its 30-year lifetime is estimated at approximately £178 million. Of this, well over half (approximately 60%) is expected to be retained within Scotland.
- ✦ The Applicant is committed to a local supplier approach which aims to deliver a significant proportion of construction and operational contracts to local companies.
- ✦ Investment in Public Access and Outdoor Recreation opportunities for the local area.

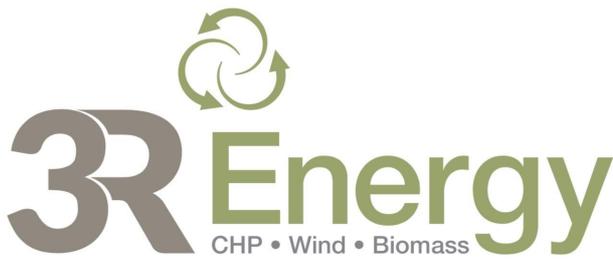
- ▲ If approved, the Proposed Development will be capable of rising to the challenge set by the Scottish Government for the onshore wind industry in Scotland to start building wind farms without public subsidy.



## Conclusion

124. This Non-Technical Summary of the EIAR provides an overview of the EIA undertaken for the Proposed Development. Within Chapter 17 of the EIAR a schedule of commitments can be found which details the environmental mitigation measures, summarised above, which the Applicant has committed to implement.
125. Chapters 16 to 18 of the EIAR summarise the potential effects, the mitigation to be implemented and the resulting residual effects. It also provides a summary of the cumulative effects of the Proposed Development in combination with other proposed, consented and operational developments.
126. The final layout has been informed by a robust EIA and lengthy design iteration process, taking into account potential environmental impacts and their effects, physical constraints, and health and safety considerations. The information used to inform the design iteration process included consultation responses received, baseline data and the impact assessment undertaken.
127. Consideration has been given to a range of design issues such as relevant planning policy, turbine models, turbine locations as well as various environmental, ecological and technical requirements. Predicted environmental effects arising from the Proposed Developments have been mitigated as far as possible, if not eliminated during the iterative design process.
128. The Proposed Development site is considered an appropriate and viable location for a wind energy project due to:
  - ▲ proven good average wind speeds and generation capacity, given the successful operation of the Existing Development on site since 1995, and the potential to achieve substantially greater electrical generation using modern turbines;
  - ▲ within an established wind farm landscape, where there is an opportunity to progress a coordinated layout, phasing, access, grid connection and landscape strategy for the future of the 'Hagshaw Cluster';
  - ▲ easily accessible direct from the M74 without passing through any communities;
  - ▲ ability to re-use a former railway line and existing tracks with minor upgrading;
  - ▲ in close proximity to a viable (existing) grid connection point; and
  - ▲ can provide a series of significant social and economic benefits for the local area.

Overall the Proposed Development is an appropriately designed, and sensibly located wind farm which is in line with policies in the local and strategic development plans and conforms to national policy. The revisions to the Existing Development have been designed to maximise energy production, within acceptable environmental limits. The Proposed Development will provide a valuable contribution towards the ambitious national targets for electricity generation from renewable sources and contribute towards sustainable economic growth in South Lanarkshire and Scotland as a whole.



**ITPENERGISED**  
Earth. Smart. Solutions