

Design and Access Statement

Installation of a solar park on Land near the village of Redwick, south east of
Newport, Wales on the Caldicot Levels

(Coordinates E341478, N185552)

Prepared for

Rush Wall Solar Park Limited

Report prepared for Rush Wall Solar Park Limited

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Executive Summary

This report has been prepared in support of the proposal for the Installation of a solar park on Land near the village of Redwick, south east of Newport, Wales on the Caldicot Levels (Coordinates E341478, N185552).

The proposed solar PV development is a temporary installation with permission being required to allow for a 35 year operation.

The design of a solar farm installation is largely pre-determined by the available solar (PV) technology and the grid connection infrastructure requirements of the project.

The location of this proposal is determined by the rare opportunity to secure an economically viable electricity grid connection. This connection opportunity is in the form of an available onsite connection to the overhead 132kV electrical lines.

The applicant has chosen the most suitable available land for this project. The location benefits from being well screened and the proposal accommodates, and mitigates where necessary, the on-site constraints of the project.

HGV access is required to the site for installation of the project over an approximate 18week construction period.

In respect of the traffic and potential highway disruption arising from installation, peak traffic generation will occur during the initial weeks. It is anticipated that at its peak the construction works will generate a maximum of 19 HGV deliveries per day (during week 2) per day although HGV movements will typically be significantly less than this during the remaining 18 week period.

No physical alterations to the vehicular accesses from the adopted highway network are proposed. Traffic management measures for construction would be secured by way of pre-commencement planning condition and details of a decommissioning plan would also be a condition of permission; these details being provided and agreed in around 35yrs time.

After installation, the site will only experience very infrequent visits for maintenance; by van/4x4-type vehicle until such time as the installation is decommissioned.

Subject to the installation and decommissioning of this proposal being carried out in accordance with traffic management measures secured by condition, the proposal would comply with the relevant access planning policy considerations of the adopted Development Plan and National Planning Policy.

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APPENDICES

Appendix 1 – Copy Site Location Plan Ref. 1578-0200-00

Appendix 2 – Copy of Site Layout Plan Ref. 1578-0201-00

Appendix 3 – Copy of Email from The Welsh Government Department for Environment & Rural Affairs ref. Agricultural Land Classification

1. INTRODUCTION

- 1.1 This report has been prepared in support of the proposal for the Installation of a solar park on Land near the village of Redwick, south east of Newport, Wales on the Caldicot Levels (Coordinates E341478, N185552).
- 1.2 The proposed development when constructed will have an installed generating capacity of approximately 75MW.
- 1.3 As established by the Developments of National Significance (DNS) (Specified Criteria and Prescribed Secondary Consents) (Wales) Regulations 2016, the proposal falls within the criteria to be considered as a DNS application by virtue of its generating capacity exceeding a threshold of 10MW. The applicant 'Rush Wall Solar Park Limited' has formally notified the Welsh Government of an intention to submit a DNS application and this notification was accepted by Ministers on 28th September 2020.
- 1.4 This report provides an overview of how the proposal has been designed and laid out bearing in mind of course that the infrastructure being proposed is largely pre-fabricated. The report discusses access arrangements for installation and thereafter for maintenance. It also considers anticipated decommissioning access although this process will be best planned for in detail at the relevant time in approximately 35 years.
- 1.5 The Statement has been structured to reflect the points of discussion as outlined in 'Design and Access Statements in Wales: Why, What and How' (April 2017) which sets out the 'Design and Access Statement' supplementary planning guidance to Technical Advice Note (TAN) 12: Design (2016) and Technical Advice Note (TAN) 18: Transport (2007).

2. SUMMARY OF THE PROPOSAL

- 2.1 The site, comprising several agricultural fields, is located on the Gwent levels in south Wales and lies within the Redwick Parish and the Newport City Council local authority area. The site's eastern boundary is adjacent to Cold Harbour Reen, which marks the border with Monmouthshire County Council.
- 2.2 The Gwent Levels are a distinctive topographic zone comprising of a low-lying, flat and expansive coastal plain extending up to the Severn Estuary. Its elevation is typically between 5 - 6m AOD and generally below 10m AOD.
- 2.3 The land is accessed for installation from Green Street to the south of the site. Green Street in turn is accessed from North Row which links the site to the A4810 to the north.
- 2.4 Figure 1 below provides a reference to the location of the application site.

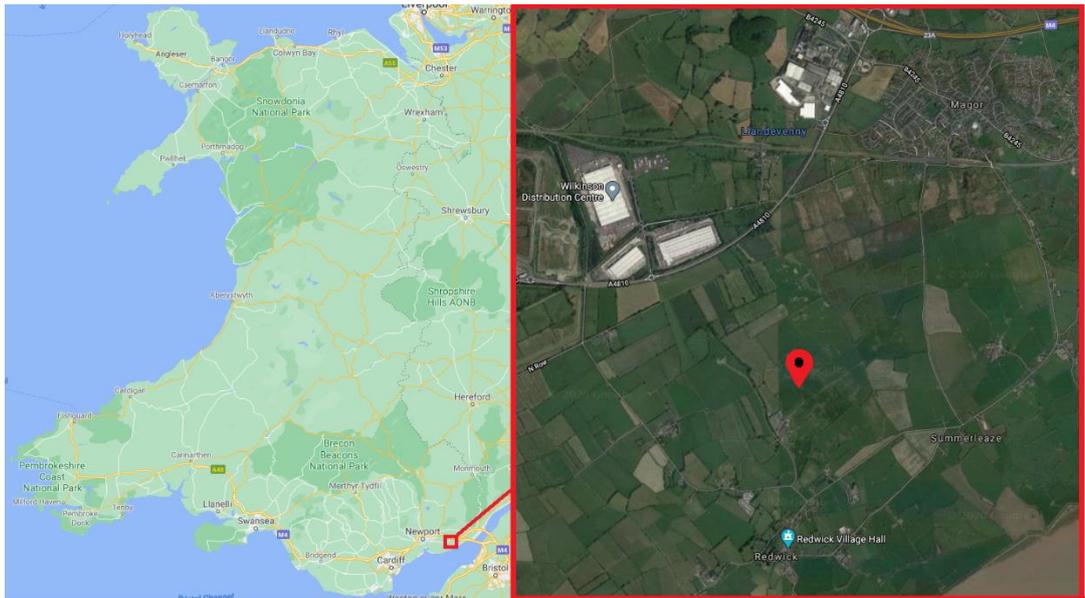


Figure 1 – Site Location

Source: Google Maps/Earth

- 2.5 Figure 2 below provides a more detailed map of the location of the site in relation to key surrounding roads and footpaths.

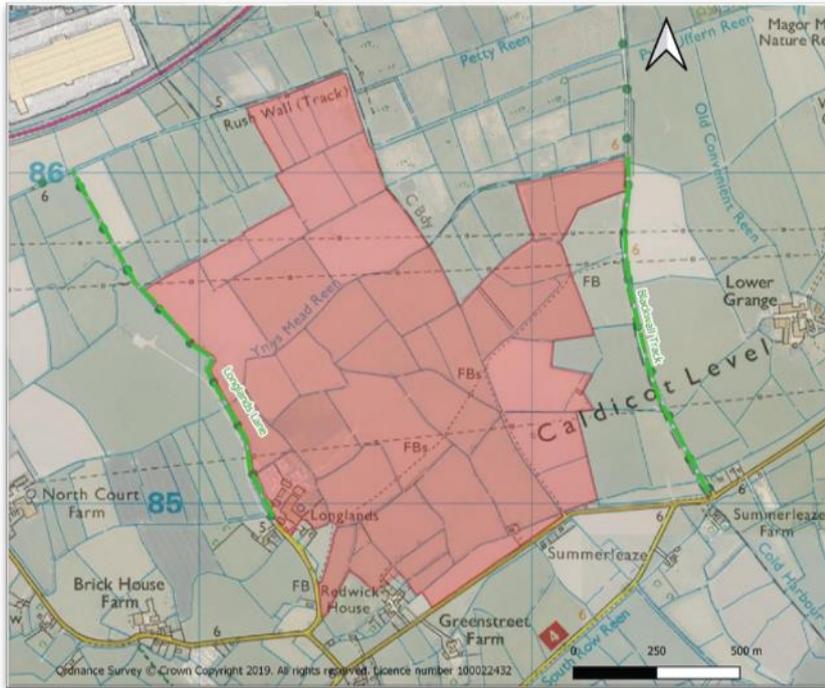


Figure 2: Site Location and Public Rights of Way (*Please note that not all the land shaded / edged red is proposed to be used – please refer to [drawing ref. 1578-0201-00 \(Planning Layout\)](#) for details of the layout*)

- 2.6 Within the above area, the site is located on farmland less than a kilometre north of the centre of Redwick village and over one kilometre from the banks of the Severn Estuary. It is relatively flat and made up of irregular shaped fields of variable sizes over a total area of over 100 hectares (See Appendix 3: Field Numbering Plan). The fields on site are bordered by drainage channels (called reens) or agricultural ditches, situated adjacent to or in between hedgerows.
- 2.7 The farmland on which the site is located belongs to Longlands Farm, comprising a dairy herd which is housed indoors year-round. Grass and maize are grown on a two to three-year field rotation and used as feed for the herd of 500 cows. Maize is cropped annually, and the grass is harvested six times per year on average. The young cattle also graze some of the fields.
- 2.8 The site is traversed east-west by three sets of overhead lines and their associated pylons.
- 2.9 Adjacent to the western site boundary there are three dwellings and the farmyard. Two of the three dwellings are owned and occupied by the farm owners. The dwelling adjacent and to the west of the farmyard, is not owned by the farm. The farmyard includes buildings to house livestock, machinery and feed, areas of hardstanding, silage

storage and a slurry silo. Caravans are stored just to the north of the farm buildings on an area of compacted gravel.

2.10 Solar panels convert sunlight to electrical energy. They generate direct current (DC) that is converted by the inverter hardware to alternating current (AC) that can be used by the electricity grid.

2.11 The development is comprised of the following main elements:

- Solar photovoltaic (PV) panels, mounted on a railing sub structure;
- 442 string inverters;
- 43 associated transformers
- Compacted gravel tracks (constructed on a sub layer geogrid membrane) to allow vehicular access between fields;
- A substation access track with a cement based top layer (a statutory requirement of the electricity distribution network operator, Western Power Distribution (WPD));
- Fencing and gates to enclose the panels within each field as illustrated in Figure 2-14 (Drawing no. 1578-0205-01);
- Security and monitoring CCTV mounted on posts within each field, as in Figure 2-15 (Drawing no. 1578-0204-00);
- Welfare and spare parts containers;
- Underground cabling to connect the panels to the substation; and
- A substation within a security-fenced, concrete-based compound measuring approximately 50m x 40m, located at the centre of the site, adjacent to an existing pylon. A T-off connection (i.e. an overhead wire) would provide the point of connection from the substation to the existing 132kV pylon on site. A 10m high single pole communications antenna may be required at the substation.

Construction of the Development

2.12 Construction is expected to take approximately 18-20 weeks, depending on weather and ground conditions, as well as other technical and environmental factors and is likely to consist of the following principal operations:

- Installation of a temporary construction compound and site office facilities;
- Construction of site tracks;
- Excavation of cable trenches and cable laying adjacent to the site tracks
- Construction of substation and inverter hardstanding areas;
- Construction of the substation buildings/compounds;
- Installation of panels and invertors; and
- Reinstatement of land where required.

- 2.13 Construction would be undertaken in accordance with a Construction Environmental Management Plan (CEMP). The CEMP includes strategies and control measures identified for managing the potential environmental impacts of construction and limiting disturbance from construction activities as far as reasonably practicable. These measures would form the basis of more detailed plans and method statements likely to be required as pre-commencement planning conditions.
- 2.14 The main groundworks entail trenching for the installation of underground cables to connect groups of solar panels to the substation. The cable trenching details are shown on Figure NTS-8. The deepest trenching would be approximately 1.2m deep for the high voltage cables.
- 2.15 Where required, temporary mats may also be used in localised areas during the construction phase to reduce ground disturbance.
- 2.16 Where it is necessary for cables to traverse reens and/or ditches, horizontal directional drilling would be utilised to bore cables beneath ditches and reens to minimize disturbance.

Panel Installation

- 2.17 The solar panels and associated infrastructure would occupy an area as shown by the Proposed Layout Plan (Drawing no. 1578-0201-00) which accompanies the DNS application; a copy of which is contained in Appendix 2.
- 2.18 A railing sub-structure would be piled into the ground, frames attached and then the solar panels mounted to the frames (Figure NTS-9). The ground disturbance from piling for the panel supports is expected to be up to 2.5m below ground level. The standard height of panels and mounting systems is 2.6m above ground level (to the top of the panel/rail system), with the exception of panels located on lower ground in the north and west of the site where the panels would be between 2.8m and 3.0m above ground level to account for potential future flood risk.

Supporting Infrastructure

- 2.19 An area for the base of the substation would be excavated prior to the hard-standing plinth concrete pour, after which the associated substation infrastructure would be installed. The ground disturbance associated with the substation is expected to be up to 2m below ground level.
- 2.20 The inverters, spread evenly across the site, would be raised off the ground on hard-standing plinths on gravel pads.

Access Tracks

- 2.21 Compacted gravel tracks would be constructed to facilitate vehicular access between fields. In addition to this, a substation access track with a cement based top layer (a statutory requirement of the electricity distribution network operator, Western Power Distribution) would be constructed, allowing operational access via Longlands Farm. All access tracks would remain in use throughout the operational phase of the project.
- 2.22 It is proposed that access between the farmyard and project area makes use of an existing trackway directly adjacent to Longlands Reen.

Access to Site

- 2.23 Components would be delivered to site using the existing road network. Traffic would follow a designated route between Junction 23A of the M4 and the site access point on Green Street via the A4810 and North Row, as shown in Figure 3 below.

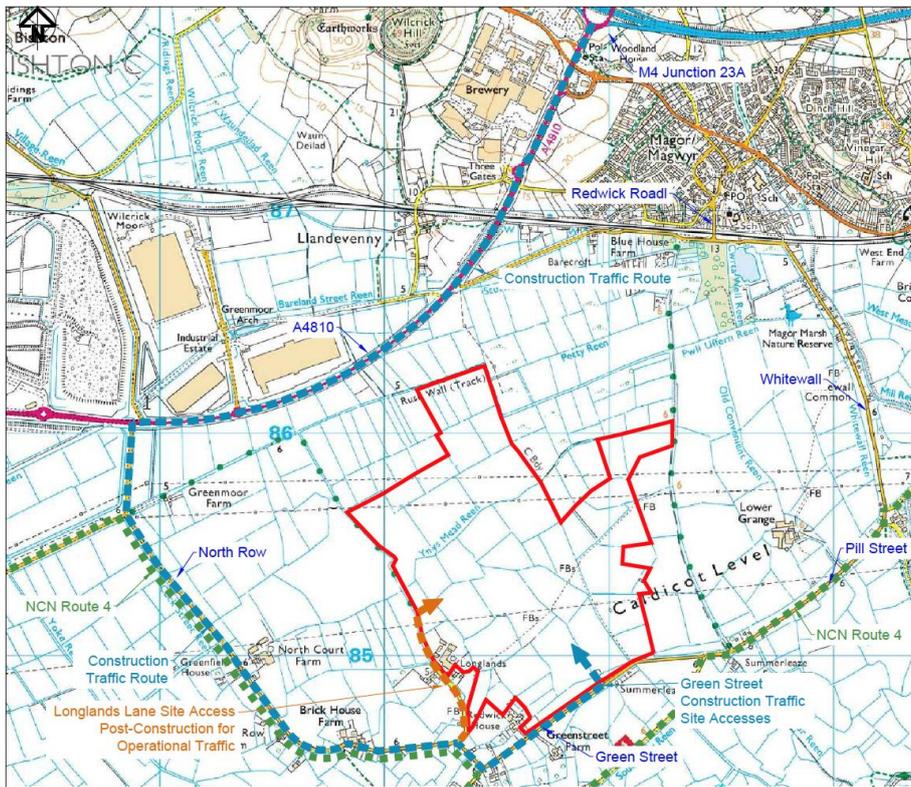


Figure 3: Proposed construction phase access to site (*Please note that not all the land shaded / edged red is proposed to be used – please refer to [drawing ref. 1578-0201-00 \(Planning Layout\)](#) for details of the layout*)

- 2.24 The construction phase is likely to span 18-20 weeks. Construction (and decommissioning) traffic would adhere to a strict construction traffic route. From the M4’s junction 23A, construction traffic would follow the A4810, turn left onto North Row

and left again onto Green Street before accessing the site. Departing traffic would follow the same route back to the M4.

- 2.25 All deliveries to site would be spread over the duration of the construction period. The construction traffic would, at most, result in an additional 38 daily vehicle movements. This equates, on average, to around 5 to 6 additional vehicle movements per hour (based on an 8-hour day).
- 2.26 A Construction Traffic Management Plan (CTMP) would be adhered to. The CTMP sets out the control measures for managing potential adverse effects associated with construction related traffic and would form the basis of more detailed plans and method statements likely to be required as a pre-commencement planning condition.

Operation and Maintenance

- 2.27 Once operational, there is likely to be minimal activity on site, particularly when compared to the construction phase. Much of the monitoring of the site is carried out remotely, though it is expected that the site would be visited at least once a month for inspection and may be regularly visited should livestock be grazing on site. Whilst other site visits would fluctuate based on planned and reactive maintenance, activity on site would remain relatively low, typically in the range of 4-5 days per month.

Decommissioning

- 2.28 The solar park would have a minimum lifetime of 35 years. During decommissioning the above ground infrastructure (solar panels and supports, substation, inverters, switchgear, CCTV & fencing) and the underground cabling would be removed from site. Tracks would be removed, unless the landowner wished for them to be retained. The site is to be returned to its former agricultural land use.

3. THE BRIEF AND VISION

- 3.1 Solar (PV) technology is widely recognised by the public and the Government as an effective and important means of securing sustainable energy production. These projects must be delivered throughout the country. The challenge is to identify viable opportunities to connect such projects as the limitations of the electricity network typically render it economically unviable to install a solar project due to the costs associated with connection to the grid.
- 3.2 In 2017, the Welsh Government announced a target of meeting 70% of Wales' electricity demand from Welsh renewable electricity sources by 2030. In 2018, Wales reached 50% of electricity consumption being generated by renewable energy, up from 19% in 2014 and 48% in 2017 (Source: Energy Generation in Wales 2018).
- 3.3 There remain significant challenges to meeting the 70% target by 2030. There is minimal economic support following the removal of Feed in Tariff and Renewable Obligation subsidy schemes. Furthermore, there are constraining factors on the electricity distribution network which require significant investment to overcome – often that level of investment required will render generation projects uneconomic.
- 3.4 The onsite opportunity to connect to the overhead 132kV electricity lines represents a rare opportunity to deliver 75MW of clean solar (PV) energy generation without the need for significant system upgrades or a connection to the grid off-site which can sometimes itself be fraught with difficulties.
- 3.5 75MW of clean renewable electricity will produce enough clean renewable electricity to power 18,755 homes per year*, a saving of 16,611 tonnes CO₂e**.

* Based on an annual average domestic consumption per household (Great Britain) of 3,799 kWh. Source BEIS, Regional and Local authority electricity consumption statics 2018.

** Based on 'Emissions associated with the generation of electricity at a power station (Electricity generation factors do not include transmission and distribution). Source BEIS, Greenhouse gas reporting: conversion factors 2020.

4. SITE AND CONTEXT ANALYSIS

- 4.1 The site location was chosen following a review of all known planning constraints including environmental, policy, residential, access etc.
- 4.2 The site is at acceptable distances from the nearest residential receptors and heritage / landscape / ecological receptors. It is also close to existing electrical infrastructure within the landscape and makes best use of existing natural landscaping (field boundaries).
- 4.3 Securing grid connection in South Wales is very difficult and problematic. Power lines in the area are congested and most are at capacity. The area within the Gwent levels between Newport and Magor is one of the only areas of the network which provides sufficient capacity and this factor has therefore provided a starting point in the search for a suitable site location.
- 4.4 Redwick and the surrounding area also benefits from large scale electricity transmission assets which were initially installed to serve the requirements of heavy industries which once existed along this coastline but are now no longer in operation.
- 4.5 The ability to connect to the grid represents the most significant benefit of the proposed site and is not achievable for an energy generation project of this scale in most other locations within the plan area or even at the national level.
- 4.6 The land area the subject of this application has been carefully selected having regard for the need to ensure the development is well concealed from local views and residential properties.
- 4.7 There are no alternative areas that would provide a site of sufficient scale to accommodate the proposed development at a location that is both available and connectable to the grid. Please refer to the submitted 'Sequential Site Selection Report' prepared by ADAS for further information in respect of the process by which the application site was chosen.
- 4.8 The submitted Landscape and Visual Impact Assessment (LVIA) prepared by Amalgam Landscape confirms that the site is well concealed from the public realm and from local viewpoints and properties.
- 4.9 Furthermore, the site is of poor agricultural land quality; a mosaic of Grade 3b and Grade 4 agricultural land which is not classed as the best and most versatile agricultural land for which planning policy guidance seeks to protect.

5. INTERPRETATION

- 5.1 The process of layout design is determined by the need to meet the operational and functional requirements of the Project; and b) the need to minimise any environmental impacts that might arise from the Project.
- 5.2 The proposed solar installation is located on farmland less than a kilometre north of the centre of Redwick village and over one kilometre from the banks of the Severn Estuary. It is relatively flat and made up of irregular shaped fields of variable sizes over a total area of over 100 hectares.
- 5.3 The fields on site are bordered by drainage channels (called reens) or agricultural ditches, situated adjacent to or in between hedgerows (Figure 2-3). The farmland is drained by the reen system, within which water flows slowly towards the Severn Estuary. The level of reens is controlled by means of a series of sluices; separate boards in which may be raised or lowered to keep water levels high enough for livestock to drink.
- 5.4 Figure 3 below shows an excerpt of a map detailing reens managed by Natural Resources Wales.

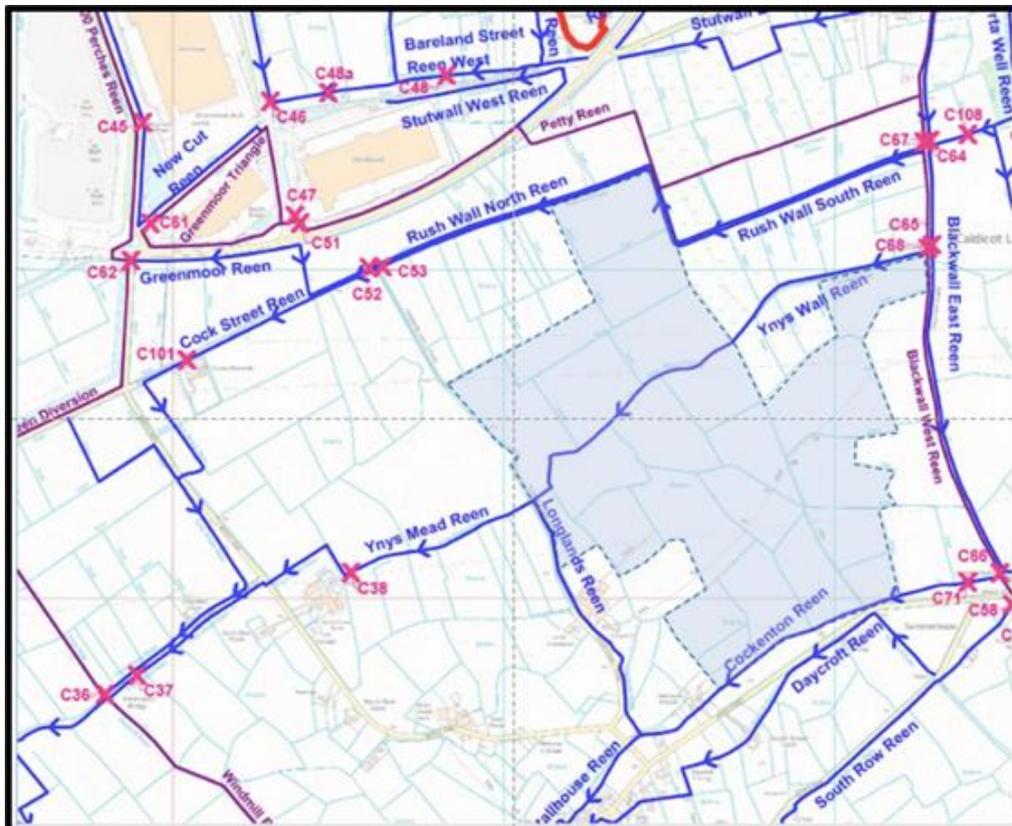


Figure 3: Excerpt of map detailing reens managed by NRW. Source Natural Resources Wales: Map 4 – Whitson and Greenmoor (11/02/2015)

- 5.5 The main reens on the site or adjacent to the site are the Ynys Mead Reen, Cockenten Reen, Longlands Reen, Blackwall West Reen and Rush Wall South Reen (Figure 3). These are cleared annually by Natural Resources Wales (NRW). As such, NRW require access to these reens at all times in order to carry out this maintenance. The farm maintains the other reens on the site, mainly to remove vegetation (such as hedge trimmings).
- 5.6 The farmland on which the site is located belongs to Longlands Farm, comprising a dairy herd which is housed indoors year-round. Grass and maize are grown on a two to three-year field rotation and used as feed for the herd of 500 cows. Maize is cropped annually, and the grass is harvested six times per year on average. The young cattle also graze some of the fields.
- 5.7 Adjacent to the western site boundary there are three dwellings and the farmyard. Two of the three dwellings are owned and occupied by the farm owners. The dwelling adjacent and to the west of the farmyard, is not owned by the farm. The farmyard includes buildings to house livestock, machinery and feed, areas of hardstanding, silage storage and a slurry silo. Caravans are stored just to the north of the farm buildings on an area of compacted gravel. These areas are accessed by a short single-track tarmac road with two passing places (Longlands Lane), off North Row. Where Longlands Lane meets North Row there is a small recreation ground with children's play equipment.

6. DESIGN DEVELOPMENT

- 6.1 The application is accompanied by comprehensive Environmental Statement (ES) reviewing the anticipated impacts of the proposal in relation to specific potentially significant environmental considerations that include landscape and visual, ecological, highways and access, hydrology and flood risk, heritage, glint and glare as well as potential cumulative impacts.
- 6.2 The DNS submission is also accompanied by supporting assessment work that was scoped out of the ES such as the flood consequences assessment, tree survey and a habitat regulations assessment.
- 6.3 The final layout and where appropriate, any proposed mitigation, will provide an opportunity for hedgerow and ree habitats and the introduction of species-rich grassland. The change of the use of the land from intensively farmed land of dairy cows to a solar park will introduce important opportunities over the lifetime of the development for habitat enhancements and landscape management.
- 6.4 Farming will continue alongside energy generation with the land to the south of the solar installation (as excluded from the layout of the development but within the red line of the site, continuing as a dairy business albeit being managed less intensively over a smaller area of land (see drawing ref. 1578-0201-00 in Appendix 2).
- 6.5 There are no public footpaths that cross the application site and therefore the layout has not been constrained by the need to re-route / divert existing public rights of way as is often the case on other solar (PV) developments.

7. THE PROPOSAL

7.1 Character

- 7.1.1 The proposed development will generate electricity from solar (PV) panels. Inverter technology which converts direct current (DC) into alternating current (AC) will then transfer / export the electricity generated into the local electricity distribution network.
- 7.1.2 The solar (PV) panels are mounted on fixed metal frames with support posts driven into the ground to varying depths dependent on ground conditions, avoiding the use of concrete foundations.
- 7.1.3 The panels are laid out in east-west orientated rows in order to optimise solar gain. The standard height of panels and mounting systems is 2.6m above ground level (to the top of the panel/rail system), with the exception of panels located on lower ground in the north and west of the site where the panels would be between 2.8m and 3.0m above ground level to account for potential future flood risk.
- 7.1.4 The rows of solar panels are spaced at varying distances to avoid one row of panels shading the next although. The panels are non-reflective (i.e., to prevent glint or glare) and angled at approximately 22° to horizontal.

7.2 Access

- 7.2.1 This section of the Design and Access Statement is an overview of the access and transport considerations of this proposal. Please refer to the Transport Chapter 10 of the Environmental Statement for further details relating to detailed access considerations and potential impacts.
 - 7.2.2 It is anticipated that the construction of the solar farm will take some 18 weeks. Peak traffic generation will occur during the initial weeks when crushed stone will be brought onto site to construct the compound area and access tracks. It is anticipated that at its peak, the construction works will generate a maximum of 19 HGV deliveries per day although it should be noted that there will be significantly less deliveries (a day) during most other weeks of the installation period.
- 7.3 The land is accessed for installation from Green Street highway to the south of the site. Green Street in turn is accessed from North Row which links the site to the A4810 to the north. Traffic management will be in place during the construction period; the details of which would be expected to be conditioned for future agreement with the relevant Highways Authorities.

- 7.3.1 Wheel washing facilities will be provided at the access point from Green Street to prevent mud and debris from being carried onto the highway. These measures will ensure the proposed development can be installed within minimal disruption on the highway network and minimal highway safety impacts to users of the highways.
- 7.3.2 After commissioning, the site will only experience very infrequent visits for maintenance, by van/4x4-type vehicle; accessing the site from Longlands Lane which is the principle access to the farmholding.
- 7.3.3 The Transport Chapter of the ES (prepared by Acstro) addresses the various transport and access related considerations to installation of the proposal. It demonstrates that the construction traffic associated with the development will be modest in volume and will have no significant impact on the operation of the surrounding highway network. It also demonstrates that safe access to the site will be provided from the public highway.
- 7.3.4 The Transport Statement concludes that *“the proposed mitigation measures will ensure that construction traffic can safely access the site and that there will be no significant permanent impact on the operation and safety of the surrounding highway network. As such it is considered that the proposed development is acceptable in terms of its Transport impacts.”*
- 7.3.5 The proposal will comply with the relevant access and highway safety planning policy framework of the adopted Development Plan as well as relevant National Planning Policy Guidance.

7.4 **Environmental Sustainability**

7.4.1 Overview of Environmental Credentials

- 7.4.2 The submitted application confirms that at an approximate 75MW design capacity, the proposal represents an important contribution towards the nation’s efforts on tackling climate change; contributing significantly to Newport County Council’s contribution to achieving carbon emission targets and crucially making a significant contribution towards the nation’s target of securing 70% of electricity generation being from renewable sources.

- 7.4.3 75MW of clean renewable electricity will produce enough clean renewable electricity to power 18,755 homes per year*, a saving of 16,611 tonnes CO₂e**.
- 7.4.4 The development will provide an opportunity for the expansion and further maturity of hedgerow and ree habitats, and the introduction of species-rich grassland managed as meadow to encourage more wildlife locally.
- 7.4.5 Farming will continue alongside energy generation within the remaining fields of the farmholding which are not proposed to be used as part of the solar development (please refer to drawing ref. 1578-0201-00).
- 7.4.6 Enclosed within the application is a matrix assessment of the net ecological impacts of the proposal. The matrix used is that which is being developed by Natural England and which Natural Resources Wales have adopted until such time as they develop their own matrix.
- 7.4.7 The matrix calculations show that when the proposed management as set out in the submitted Landscape and Ecological Management Plan (LEMP) is implemented, proposal would have net biodiversity benefits which is likely to consist of about 190 habitat units representing a 90% increase over the site baseline. Please refer to Page 38 of the LEMP for further information in respect of biodiversity net benefits and the enhancement detailed within Page 26 of the LEMP and as shown on Map 2.
- 7.4.8 The solar energy industry provides thousands of jobs worldwide and many of those are in the UK; jobs being created through both the consultancy, and construction and operation phases of solar developments. In addition, during the construction phase, workers will use local services and accommodation, providing support for local business and the economy.
- 7.4.9 Consideration of Potential Environmental Impacts
- 7.4.10 Use of Agricultural Land for Ground-Mounted Photovoltaic Solar Farms
- 7.4.11 During pre-application engagement, The Welsh Government Department for Environment & Rural Affairs advised the Applicant in respect of the predictive grading of the existing agricultural land of the site.

* Based on an annual average domestic consumption per household (Great Britain) of 3,799 kWh. Source BEIS, Regional and Local authority electricity consumption statics 2018.

** Based on 'Emissions associated with the generation of electricity at a power station (Electricity generation factors do not include transmission and distribution). Source BEIS, Greenhouse gas reporting: conversion factors 2020.

7.4.12 Welsh Government confirmed (copy of email in Appendix 3) that *“It is the Departments belief that the search area is likely to be no better than ALC Grade 3b; possibly a mosaic of 3b and 4.”* In the circumstances it was advised that *“The Department does not recommend commissioning an ALC [Agricultural Land Classification] survey. The Predictive ALC Map should be taken as best available evidence.”*

7.4.13 An ALC Survey has therefore not been carried out as part of this DNS application.

7.4.14 Landscape / Visual Amenity

7.4.15 Chartered landscape consultancy Amalgam Landscape has prepared a Landscape and Visual Impact Assessment (LVIA) in accordance with the Landscape Institute’s prevailing guidance for such proposals. The LVIA informs Chapter 8 of the submitted ES.

7.4.16 Existing field boundary vegetation will be protected and enhanced, to retain and improve the landscape pattern and increase screening for nearby visual amenity receptors.

7.4.17 The LVIA advises that the proposal would be enclosed by mature vegetation with glimpsed views restricted to gaps in the enclosure such as gateways. Amalgam Landscape summarise the landscape and visual impacts of the proposal within Paragraph 8.20 of the ES, as a proposal that would:

- *Add a relatively contained built element to the landscape;*
- *Have a limited indirect influence on any designated landscapes;*
- *Be set within the regular landscape pattern within mainly mature and well-vegetated field boundaries, which will be protected and enhanced through additional planting, including in-fill planting to the existing boundaries, where necessary;*
- *Only be partly overlooked from very close proximity, from gaps in enclosure, the influence dramatically reducing over time and swiftly with distance from the proposed development. Although selectively perceived in close proximity, the proposed development will be a contained built element, set within a well-vegetated landscape, notwithstanding it is temporary and reversible;*
- *Will be perceived from selected open and elevated locations to the north, where it has the potential to be viewed in combination with the nearby consented Llanwern solar scheme. The addition of the proposed development will not significantly increase the perception of numerous solar schemes on either the landscape or views and therefore there will be limited additional cumulative effects as a result of the proposed development; and*

- *Overall, the development will have limited impacts on landscape relevant designations, landscape character and visual amenity receptors and their views.*

7.4.18 Residential Amenity

7.4.19 The closest residential properties and farms to the proposed development site are largely scattered along the minor road network to the north, east, south and west.

7.4.20 Broadly to the north, there is a mixture of single and two storey properties stretched out largely to the north of the very enclosed Bareland Street including the two storey Blue House Farm (to the south of the road) and various single and two storey properties at Barecroft Common (to the north of the road). Largely surrounded and enclosed by mature vegetation surrounding the properties, lining the minor road and in the surrounding landscape, wider views are restricted.

7.4.21 Broadly to the east, there are scattered largely detached single storey and two storey properties along both sides of Whitewall Lane and Pill Street.

7.4.22 To the north-east, along Whitewall Lane, the scattered residential properties are largely set within and enclosed by large well-vegetated gardens on both sides of the minor road as well as the mature vegetation enclosing Whitewall Lane (for the properties to the east of the minor road).

7.4.23 Potential visual impacts on residential amenity include views from settlements including towns, villages, hamlets and individual residential properties. The proposals would be largely screened by the surrounding landscape features such as hedgerows and trees. Views are '*potentially possible from the upper stories of the few nearby residential properties*' (ref. Paragraph 8.15 of the ES).

7.4.24 There is also the potential for the proposal to impact residential properties by way of glint and glare. The submitted DNS Application is accompanied by a Glint and Glare Assessment. Chapter 12 of the submitted ES discusses Glint and Glare and the assessment itself is contained in Appendix 12.1 of the ES.

7.4.25 The conclusions of the Glint and Glare assessment work in relation to residential impacts are that:

"Reflections at dwelling receptors are unlikely to be experienced due to restricted visibility of the site, considering the existing and proposed screening in the area." (Paragraph 7.1)

7.4.26 The proposals also have the potential to impact residential amenity by way of noise and vibration. In the circumstances, the application addresses Noise and Vibration in Chapter 11 of the submitted ES.

7.4.27 The noise assessment work was carried out by Inacoustic who conclude that in respect of the potential construction and decommissioning impacts, the *“effects will typically be Temporary Negligible to no worse than Minor, at the closest receptor to any works.”* (Paragraph 11.102 of the ES).

7.4.28 Inacoustic also reviewed the potential for operational impacts on the basis of a set of worst-case, candidate input parameters. On the basis of these parameters, Inacoustic predict that the proposal will *“give rise to no worse than a Negligible Impact at the assessed receptors.”* (Paragraph 11.104 of the submitted ES).

7.4.29 Heritage

7.4.30 A detailed Historical Impact Assessment has been carried out by Archaeology Wales and accompanies the application. This work included a Desk-Based Assessment (DBA) which is contained in Appendix 9.1 of the ES. The DBA reviews the potential for impacts on the settings of heritage assets and buried archaeology.

7.4.31 Concluding their assessment of the proposal in respect of heritage assets such as listed buildings, parks and gardens and scheduled ancient monuments (Chapter 9 of the DBA), Archaeology Wales state that:

“Given the restricted views created by hedgerows and buildings on the levels themselves and the relative distance of many of the designated assets, the Listed Buildings, Parks and Gardens and Scheduled Ancient Monuments are not impacted by the development with the exception of Wilcrick Hill Camp Scheduled Monument (MM127) which has a view over the levels including the proposed development area. However, the view currently encompasses modern development and extent of the view remains unrestricted by the proposals, therefore the impact is considered to be low.” (Paragraph 9 of the HIA as contained in Appendix 9.1 of the ES)

7.4.32 Archaeology Wales also conducted an ‘ASIDOHL2’ study to determine the potential impact of the proposed development to the Gwent Levels Landscape of Outstanding Historic Interest.

7.4.33 The ‘ASIDOHL2’ survey work is included in Appendix 9.2 of the ES. It concludes that in respect of the HLCAs [Heritage Landscape Character Areas] there would be *“a distinct visual change, potentially fragmenting the continuous agricultural landscape currently visible. That being said, significant viewpoints are limited, long distance views across the*

landscape are soon obscured by boundary vegetation. Steps have been taken to reduce visual impacts, through positioning development back from the main publicly accessible thoroughfares, creating buffer zones around ditches and reens, and retaining existing boundary vegetation.” (Paragraph 7.1.6 of the ASIDOHL2 contained in Appendix 9.2 of the ES).

7.4.34 Archaeology Wales also reviewed the potential for the proposal to impact buried archaeology. The work informed an Palaeoenvironmental Survey carried out in in September 2020. A copy of the Palaeoenvironmental Survey is contained within Appendix 9.2 of the submitted ES. The survey confirmed that only small areas might be impacted by the steel posts of the panel frames of the development and therefore a suitably worded condition to secure a ‘watching brief’ would help ensure potential impacts are monitored and recorded.

7.4.35 Ecology and Ornithology

7.4.36 The ecological and ornithological survey work enclosed with this DNS application was carried out by Western Ecology. These subjects form separate Chapters within the ES; Ecology forming Chapter 5 and Ornithology Chapter 6.

Ecology

7.4.37 Chapter 5 (Ecology) of the ES assesses the likely significant effects on the environment from the construction, operation and decommissioning of Rush Wall Solar Park on the following environmental receptors and/or resources:

- Designated nature conservation sites
- Notable habitats
- Notable species

7.4.38 The ecological survey work concluded that the construction phase of solar park would have no significant adverse effects on valued ecological receptors as the majority of the habitats supporting these features will be retained in an undeveloped buffer zone outside the equipment footprint. This includes interest features of Local, National and International nature conservation sites, habitats such as hedgerows and reens, bats, amphibians, water voles, and aquatic plants and invertebrates.

7.4.39 The operation of the solar park will have a minor, long-term positive effect on a range of valued ecological receptors. This will be through retaining the undeveloped buffer zone along site boundaries, reduced management pressures on land that is currently an intensively managed grassland habitat, and the creation of an additional 33ha of grassland habitats on land that is currently in arable rotation.

- 7.4.40 Receptor specific enhancement detailed within the Landscape and Ecology Management Plan (LEMP) (Appendix 2.3 within the submitted ES) includes bat roosting and bird nesting boxes, removal of shading vegetation along ditches, creation of habitat for Shril Carder Bee and management of buffer zone grassland for biodiversity.
- 7.4.41 Cumulative impacts were considered by the ES for a diverse range of planning applications provided by Newport City Council and Monmouthshire County Council. The ES concludes that cumulative impacts are unlikely.

Biodiversity Net Gain

- 7.4.42 In the absence of other tools specific to Wales, Defra Biodiversity Metric 3.0 has been applied to habitat areas and watercourses at this site to provide a quantitative assessment of biodiversity net gain. This has not been applied to hedgerow habitat.
- 7.4.43 Taking the following into account, a predicted net gain of 144 habitat units is likely, representing a 75% increase over site baseline:
- habitat losses associated with built infrastructure and associated access tracks,
 - improvement of habitat quality associated with under panel grassland habitats,
 - improved grassland habitat quality associated with ree and ditch buffers,
 - improvement in areas where arable has been planted to grassland.
- 7.4.44 In addition, taking the following into account, a predicted net gain of 19.9 River units is likely, representing a 18% increase over site baseline
- improvement in ditch habitat quality due to changes in land management and active scrub removal to open up ditch habitat.

Ornithology

- 7.4.45 Chapter 6 (Ornithology) of the ES assesses the likely significant effects on the environment from the construction, operation and decommissioning of Rush Wall Solar Park as described in Chapter 2 on the following environmental receptors and/or resources:
- Nature conservation sites designated for ornithological interest features
 - Wintering and passage birds
 - Nesting birds
- 7.4.46 The ornithological work concluded that following mitigation for breeding and wintering Lapwing, the construction phase of solar park would have no significant adverse effects on ornithological interest features of National and International nature conservation sites within the zone of influence of this development.

- 7.4.47 The ES accepts that there may be temporary disturbance of individual ground nesting birds during the construction phase. The provision of Lapwing breeding mitigation and nesting bird checks prior to the start of works would minimize adverse effects to an acceptable level.
- 7.4.48 By creating an undeveloped buffer zone to the hedgerows and reens, adverse effects on hedgerow and marshland/water nesting birds during construction will be avoided.
- 7.4.49 Following mitigation for wintering Lapwing, the operational phase of solar park would have no significant adverse effects ornithological interest features of National and International nature conservation sites within the zone of influence of this development.
- 7.4.50 Providing optimal habitat away from agricultural operations in the breeding Lapwing mitigation area will give local ground nesting birds the opportunity to nest and successfully raise chicks.
- 7.4.51 Enhancement detailed within the Landscape and Ecology Management Plan (LEMP) (contained in Appendix 2.3 of the ES) includes bird nesting boxes and management of buffer zone grassland for biodiversity which will benefit local bird species.
- 7.4.52 Cumulative impacts were considered for a diverse range of planning applications provided by Newport City Council and Monmouthshire County Council. The ES concludes that cumulative impacts are unlikely.
- 7.4.53 Hydrology, Water Quality and Flood Risk
- 7.4.54 Chapter 7 of the ES assesses the Hydrology, Water Quality and Flood Risk considerations of the development proposal. The work was carried out by chartered hydrologists and geologists Yellow Sub Geo.
- 7.4.55 Yellow Sub Geo advise that because the application site is currently used for intensive dairy farming and associated cultivation of forage crops including maize. The conversion of the Site to one of a solar park with associated low-intensity grazing grassland represents *“the opportunity to deliver a moderate beneficial effect to the water quality of the reens and ditches on site. This in turn will have a beneficial effect on the Gwent Levels Redwick Llandevenny SSSI features in the vicinity of the site”* (ref. Paragraph 7.2 of Chapter 7 of the ES).
- 7.4.56 The conversion of the site from intensive agriculture to one of a solar farm with accompanying low-intensity grazing represent a small beneficial effect on the Site’s capacity to hold and store rainfall. The ES outlined that *“this is because the current farming practices involve the use of heavy agricultural equipment that compact soil and*

lessen infiltration and because the current cultivation of forage crops leaves the soil bare in winter months. Neither will be the case under a solar park system” (Paragraph 7.3 of the ES).

- 7.4.57 The developer has committed to use of best practice in environmental controls during the construction period, as documented in the appended Outline Construction Environmental Management Plan.
- 7.4.58 The Construction Environmental Management Plan (CEMP) appended to the ES (Appendix 2.2 of the ES) sets out a number of protocols that shall be employed and adhered to during the construction of the solar park in order to manage and mitigate any impacts to the water environment. Effects on the water environment will therefore be controlled at a negligible level during the construction phase.
- 7.4.59 The solar park design has been compiled in order to build into the design inherent mitigation against any future impacts on the water environment.
- 7.4.60 Yellow Sub Geo also carried out A Flood Consequences Assessment (FCA) has also been prepared by Yellow Sub Geo. The assessment confirms that the project has an operational period to 2055/ 2065 and is considered to be classed as “less vulnerable”.
- 7.4.61 The consequences of flooding on the proposed development can be managed to an acceptable level (i.e. a level that does not adversely affect the operation and commercial viability of the solar park). They also conclude that the proposal is considered to be ‘*no risk to the public*’ and that there is ‘*no detriment to flood risk elsewhere*’. (FCA Chapter 8: Conclusions).
- 7.4.62 Trees and Hedgerows
- 7.4.63 Woodland & Countryside Management Ltd. was commissioned to carry out a BS5837 (2012) Tree Survey.
- 7.4.64 The Tree Survey informs the proposal layout and provides protection measures to ensure no harmful impacts to trees or hedgerows during installation.
- 7.4.65 For the avoidance of doubt, the Tree Survey is not an ES document and was produced to assist the layout plans and also the protection measures necessary to hedgerows and trees. A suite of Plans numbered 1 to 9 accompany the DNS application submission.

7.4.66 Glint and Glare

7.4.67 The Consultants that carried out the Glint and Glare survey work; Pager Power, have also reviewed the potential glint and glare impacts on highway users. The Assessment concludes that *“reflections are not predicted for road users on any major roads due to a lack of visibility of the reflecting panel locations”* (Ref. ‘Overall Conclusions’: Paragraph 7.1 of the Glint and Glare Survey).

7.4.68 Glint and Glare has already been discussed in the context of residential amenity under the ‘Residential Amenity’ Chapter of this report (Paragraphs 7.4.24 – 7.4.25). In respect of residential amenity, the ‘Overall Conclusions’ Chapter 7 of the Glint and Glare assessment work advises that in relation to predicted residential impacts *“Reflections at dwelling receptors are unlikely to be experienced due to restricted visibility of the site, considering the existing and proposed screening in the area.”* (Ref. Paragraph 7.1)

7.5 **Community Safety**

7.5.1 During the installation of the proposed solar farm, working hours would be restricted to minimise noise and disturbance impacts on the local community. Construction of the development will be undertaken 6 days a week. Construction work shall be limited to daylight hours but restricted to 0800 – 1800 Monday to Friday and 0800 to 1300 Saturday. Work shall not be undertaken outside of daylight hours during the bat active period of April to October inclusive.

7.5.2 Please refer to the submitted CEMP (Appendix 2.2 of the submitted ES for further details regarding construction management.

7.5.3 During Construction / delivery periods, standard highway safety protocols will be followed and complied with in accordance with the recommendations outlined in the submitted Construction Traffic Management Plan (CTMP) prepared by Acstro Ltd (Appendix 2.1 of the ES) and the submitted Construction Environmental Management Plan (CEMP) prepared by Yellow Sub Geo (Appendix 2.2 of the ES) for further details.

7.5.4 The facility is perimeter secured during and after construction. Details of the security fencing are enclosed with the application inclusive of CCTV locations and design details.

7.5.5 There is no existing or proposed public access to the site.

7.6 Response to planning policy

- 7.6.1 This report summarises the national planning policy position in respect of Welsh Government's aspiration to secure clean renewable energy in Wales. Please refer to the submitted 'Planning Statement' prepared by Renplan Ltd. for a more detailed policy analysis of this proposal in respect of the prevailing local Development Plan planning policy framework for the proposal.
- 7.6.2 Planning Policy Wales (PPW) Edition 11, December 2018 sets out the most up to date prevailing National Framework for planning guidance in Wales. In light of the 'Well-being of Future Generations (Wales) Act 2015', Ministers revised Planning Policy Wales (PPW) to reflect the objectives of the strategically set Well-being of Future Generations (Wales) Act 2015.
- 7.6.3 PPW Edition 10 sets out that securing large scale strategic renewable energy generating infrastructure is essential to securing the well-being goals of the future generations of Wales.
- 7.6.4 The proposal will introduce important, additional renewable energy generation to contribute towards Wales' strategic objectives of generating 70% of its electricity consumption from renewable energy by 2030 (ref. Welsh Government's 'Energy Generation in Wales 2018' and Planning Policy Wales Edition 10).
- 7.6.5 In 2017, the Welsh Government announced a target of meeting 70% of Wales' electricity demand from Welsh renewable electricity sources by 2030. In 2018, Wales reached 50% of electricity consumption being generated by renewable energy, up from 19% in 2014 and 48% in 2017 (Source: Energy Generation in Wales 2018).
- 7.6.6 There remain significant challenges to meeting the 70% target by 2030. There is minimal economic support following the removal of Feed in Tariff and Renewable Obligation subsidy schemes. Furthermore, there are constraining factors on the electricity distribution network which require significant investment to overcome – often that level of investment required will render generation projects uneconomic.
- 7.6.7 This project represents an important opportunity to secure renewable energy generation that is not reliant on subsidies from Government and which also benefits from the ability to connect to the local network. The proposal at an approximate 75MW design capacity, is therefore a strategically important opportunity for Wales to connect a significant amount of new, clean renewable energy generation.

8. CONSULTATION

Public Open Day

- 8.1 A public open day was held on 11th September 2019 between 1pm and 7pm at Redwick Village Hall where members of the local community were invited to come and view the prevailing proposals and discuss the proposals with the Applicant, the Applicant's Planning Consultant and the Applicant's Environmental Consultant.
- 8.2 The feedback received at the open day and in writing following the open day was generally very positive. For further details on how that feedback has been born consideration in the evolution of this proposal can be found in a Consultation Report prepared by Renplan Ltd. and that is submitted with the DNS application.

Pre-Application Enquiry – Local Planning Authorities (LPA's)

- 8.3 Pre-application discussions took place with both Newport City Council and Monmouthshire County Council. Copies are enclosed within appendices 4 and 5 of the submitted Planning Statement. Discussions were extremely useful to help understand the local planning issues and how each authority expected these to be considered as part of an application.

Pre-Application Enquiry – Natural Resources Wales (NRW)

- 8.4 The Applicant commenced pre-application discussions with NRW through the Authority's adopted procedure for engaging with Applicant to provide a 'Discretionary Advice Service'. This is a paid for service which but unfortunately terminated by NRW because of the inability of the Authority to commit further to initial discussions as a result of the organisation's limited resources to do so.

Statutory Pre-Application Consultations

- 8.5 The Applicant is **currently** undertaking a second round of pre-application consultation with statutory consultees, key stakeholders and the community; in accordance with Articles 8 and 9 of 'The Developments of National Significance (Procedure) (Wales) Order 2016'. A website containing a draft copy of the proposed DNS application acts as a 'consultation hub' for a minimum period of 42 days.
- 8.6 Full details can be found in a Consultation Report prepared by Renplan Ltd. and that is submitted with the DNS application. Please refer to the Consultation Report for further information on the consultations that have been carried out in advance of the making of the formal DNS application.
- 8.7 **Further discussion to be added following consultation exercise.**

9. CONCLUSION

- 9.1 The proposed solar PV development is a temporary installation with permission being required to allow for a 35 year operation. The design of a solar farm installation is largely pre-determined by the available solar (PV) technology and the grid connection infrastructure requirements of the project.
- 9.2 The location of this proposal is determined by the rare opportunity to secure an economically viable electricity grid connection. This connection opportunity is in the form of an available onsite connection to the overhead 132kV electrical lines.
- 9.3 The applicant has chosen the most suitable available land for this project. The location benefits from being well screened and the proposal accommodates, and mitigates where necessary, the on-site constraints of the project.
- 9.4 HGV access is required to the site for installation of the project over an approximate 18week construction period.
- 9.5 In respect of the traffic and potential highway disruption arising from installation, peak traffic generation will occur during the initial weeks. It is anticipated that at its peak the construction works will generate a maximum of 19 HGV deliveries per day (during week 2) per day although HGV movements will typically be significantly less than this during the remaining 18 week period.
- 9.6 No physical alterations to the vehicular accesses from the adopted highway network are proposed. Traffic management measures for construction would be secured by way of pre-commencement planning condition and details of a decommissioning plan would also be a condition of permission; these details being provided and agreed in around 35yrs time.
- 9.7 After installation, the site will only experience very infrequent visits for maintenance; by van/4x4-type vehicle until such time as the installation is decommissioned.
- 9.8 Subject to the installation and decommissioning of this proposal being carried out in accordance with traffic management measures secured by condition, the proposal would comply with the relevant access planning policy considerations of the adopted Development Plan and National Planning Policy.

APPENDICES

Appendix 1 – Copy Site Location Plan Ref. 1578-0200-00

(Not to Scale: please refer to original document that has been submitted with the DNS Application)

Appendix 2 – Copy of Site Layout Plan Ref. 1578-0201-00

(Not to Scale: please refer to original document that has been submitted with the DNS Application)

Appendix 3 – Copy of Email from The Welsh Government Department for Environment & Rural Affairs ref. Agricultural Land Classification

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