

Land at Legacy, Bronwylfa Road, Wrexham, LL14 4HY

Planning Application for Solar PV installation

Design and Access Statement

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1. Purpose of this statement

This Statement has been prepared to accompany a full planning application by Wrexham County Borough Council (hereafter referred to as Wrexham CBC) for the creation of a solar photovoltaic (PV) installation on land at Legacy, Bronwyfla Road, Wrexham, LL14 4HY.

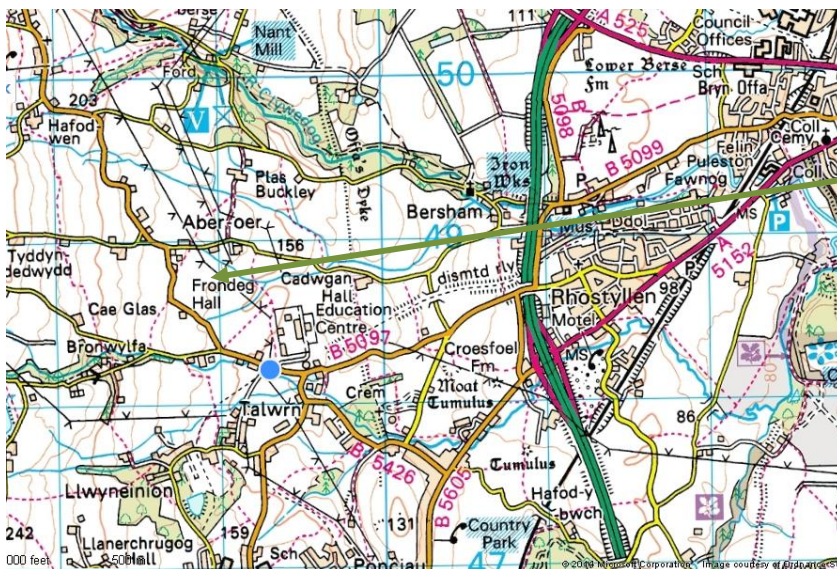
The proposed development would enable the generation of 3 MW of energy from a renewable source.

This Statement provides information required by Planning Policy Wales: Technical Advice Note 12: Design. It:

- Identifies the site
- outlines the proposal, explaining the design concepts and principles in relation to
 - the environmental sustainability
 - movement to, from and within the development
 - character (including amount, layout, scale, appearance and landscaping)
 - community safety
- demonstrates the steps taken to appraise the physical, social, economic and policy context of the development
- explains how the design of the development takes that context into account in relation to its proposed use and each of the aspects specified above
- explains the approach to access, including how any relevant policies or specific issues have been taken into account and how features which ensure people's access to the development will be maintained.

2. The site location

The Legacy site is located approximately 4 km west of Wrexham off the B5426 Bronwyfla Road as shown below:



Proposed location of
PV installation

3. Outline of the proposal

3.1 Environmental sustainability

It is proposed to install a PV system to provide a source of renewable energy, which will also assist in meeting carbon reduction targets, in accordance with EU, National and Wrexham CBC sustainability aspirations.

3.2 Character

Amount, Layout & scale

The development comprises ground mounted solar panel modules and associated electrical connection infrastructure (cables, inverters, substation etc) and has the capacity to produce circa 3 MW which would equate to enough power for 800 – 900 homes.

The installation will be located on ground to the west of the Legacy site. This offers ready access to an existing electrical connection, which the PV system will link into. The solar panels are focussed in this western part of the site, and the location takes into account the context, constraints and opportunities identified in Section 4.

The layout proposed covers an area of approximately 7.3 Ha (total of fenced areas A – D as shown below) and is illustrated below.



Appearance and landscaping

Solar panels will be mounted on lightweight fixed frames anchored into the ground. Each individual panel is approximately 900mm x 1650mm x 40mm. They will be arranged on the frames no higher than 3 metres at the highest point off the ground, and will slope at a fixed angle toward the south, as shown on drawing number 1091/01/03 submitted with this application. The panels will be arranged in rows of varied length so as to fit a shape which reflects the site opportunities and constraints.

The panels are finished in blue/black and are designed to maximise the capture of solar energy. Energy is converted to electricity by means of inverters. Frame-mounted inverters may be used on the site and/or inverters may be located within a container located in each of the groups of panels; the final decision will be made in conjunction with the Network Provider requirements. The submitted layout plan allows for 3 No. inverter and transformer housings. These would be secure metal housings, finished in green to minimise impact, and of approximate dimensions 2.5 x 10.0 x 3.0 metres, as shown on Dwg No. 1091/01/01. The energy is then transferred by cable and connected to the site transformer station and then into the Distribution Network Operator (DNO) switchgear housing (see Dwg. No. 1091/01/04) for connection into the network.

A small substation will be required, to be located in the western part of the site as shown on the PV Layout plan, Dwg No. R3.4. This will be formed of brick and timber as per the DNO requirements (see detailed plans from SP Energy networks submitted with the application).

For security reasons, the panel arrays will be fenced to a maximum height of 2 metres with either a lightweight mesh finished in green, or, as is becoming more commonly used for solar installations, standard deer fencing. The operator may also be required to provide for security via a motion sensor infra red silenced alarm system. Sensors would be erected on poles of maximum height 3m located on the site perimeter. No artificial lighting will be installed along the boundaries.

The areas between and around the solar panel arrays can continue in agricultural usage, most probably being grazed by sheep. Following decommissioning of the equipment, the whole of the site can return to agricultural use.

Buffer strips of rough grassland, of minimum 5 metres between the fence and site boundaries have been allowed. Similarly, areas beneath mature trees on the site will be rough grassland buffers, as recommended by the Ecology report (see Section 4.4).

All trees on the site and perimeter will be retained, as will all hedgerows with the exception of a short length where it is necessary to form the temporary access for construction. The opening formed for temporary access will be stopped up afterwards with a post and rail fence. The design includes for strengthening of existing hedgerows and new hedgerow planting (see Landscape and Visual Appraisal).

The following illustrations show typical components and arrangements of a PV installation and should be read together with other documents provided as part of the planning application.



Frame mounted solar panels – the illustration shows a "2 portrait" arrangement.



"String" Inverters mounted on frame structure below the panels



Perimeter security fencing – green mesh type and deer fence type

3.3 Movement to, from and within the development

Section 4.6 describes the access route to site as agreed with the Highway Authority. For construction and deconstruction of the solar equipment, the site is to be accessed via a temporary access formed from a gap in the roadside hedgerow off the B5426. All parts of the site can be accessed from here. The temporary access is 11m wide, the width necessary to allow for delivery vehicles to turn to and from the road, as calculated by swept path/autotrack analyses (Dwg. Nos. L-WCBC-01 and 02). This temporary access will be stopped up after construction, using post and rail fencing, to prevent ongoing access.

Once operational, the site will require minimal maintenance and the site will be accessed as at present, making use of the existing track adjacent to Bronwylfa reservoir.

During construction, appropriate safety measures will be installed in relation to movement in the vicinity of existing pylons/overhead wires/underground pipes. These measures are likely to include warning notices, height restricting poles and designated vehicle crossing points, all as required by the appropriate utility/equipment owner/operator. Further information about construction is provided in Section 4.8.

3.4 Community safety

The site is not currently open to public access and this will remain the case. There is a footpath which crosses part of the application area. The alignment of this will be unaffected by the proposal. During construction works, appropriate safety measures will be installed, such as notices advising of construction operations. The areas of solar panels will be fenced and not accessible to the public.

During the construction period, temporary signage and traffic management on the local highway network will be implemented (see also 4.6 and 4.8).

4. Appraisal of the development

This section of the DAS provides an appraisal of the physical, social, economic and policy context of the development, and explains how the design of the development takes that context into account.

4.1 Landscape & visibility

A Landscape and Visual Appraisal has been carried out to inform the development of the proposed solar installation. This shows that:

- The proposed site is within landform of a rolling upland nature
- The site comprises improved grassland fields with hedgerow and woodland boundaries
- Visibility of the site is limited

The LVA confirms that the design represents an acceptable development in terms of landscape and visibility.

The proposal includes for all trees to be retained and provides for landscape enhancements including gapping up and managing existing hedgerows, and additional hedgerow planting.

4.2 Land use

The land to be used for solar panels is currently in agricultural use. This would continue to be the case following installation of the solar equipment. The land between, under, and around the solar panels can continue to be grazed and it is most likely that this will be by sheep. Similarly, after decommissioning of the solar installation, the land can continue in agricultural use, as at present.

4.3 Trees

Trees and hedgerows have been considered as an integral part of the design of the development. A key design principle of the proposal is to retain and enhance trees and hedgerows.

There are a number of Tree Preservation Orders (TPO) affecting individual trees and groups of trees around the site. The TPO's date back to 1975 and are indicated on the plan below (an extract of the TPO map)



Extract from TPO map 1975 – circles & dotted outlines indicate TPO's. Bronwylfa Road and site access is shown to the left of the map. (The access avoids TPO trees).

In addition, an Arboricultural Impact Assessment was undertaken, in accordance with BS5837:2012 , to inform the design of the development.

A key requisite of a solar farm is that panels are not unduly shaded, and a shading analysis is integral to the design process. Therefore solar equipment is sited well away from trees and avoids both tree canopy and root spread.

4.4 Ecology

An extended Phase 1 habitat survey has been carried out and this shows that the site comprises species-poor improved grassland of low habitat and botanical value. The ecology report submitted with the application suggested a range of design and ecological enhancement measures. These have been incorporated into the design and include:

- Retention of all mature trees
- Providing a buffer of rough grassland between the development and hedgerows/woodland boundaries

A substantial biodiversity enhancement is offered by creation of new ponds in a field owned by the applicant immediately West of the Legacy substation. The detail of these ponds will be agreed with Wrexham CBC's Biodiversity Officer. Therefore a net gain in biodiversity is anticipated.

4.5 Heritage

There are no Scheduled Ancient Monuments on the site. Offa's Dyke runs in a north-south alignment, and is some 470 metres from the proposed development. There are two listed buildings within 1 kilometre of the site, as follows:

- Esclusham Hall (Grade II*)
- Tan-y-Llan (Grade II)

The setting of each of these is considered as part of the Landscape and Visual Appraisal. The local landform and vegetation limits the intervisibility between each of these features

and the site, and the LVA concludes that there would be no adverse impacts on the features or their settings as a result of the proposed solar installation.

4.6 Highways

Consultation with the Highways Authority has been undertaken and the following route confirmed as suitable for construction vehicles to access the site:

A483 Croesfoel roundabout. B5605 exit to Rhosllanerchrugog for 0.1 miles. Turn right up B5098 for 0.3 miles. Turn left on to B5097 for 0.9 miles as far as Legacy Water tower. Continue straight on Bronwylfa Road / B5426 until you reach the site. The construction vehicles will access the site via an agreed location off the Bronwylfa Road where there is currently a wood fence. (see Section 3.3).

Vehicles accessing and exiting the site during construction will be controlled using a banksman to ensure safe access/egress.

There are no current weight or width restrictions on this route. It is a route which has been used previously to take wide loads / HGVs to the National Grid site at Legacy Substation.

After the temporary construction period (see 4.8), there will be occasional need for site visits to maintain and check equipment, and access to the site for these purposes will be as existing, making use of the existing track to the Bronwylfa reservoir.

4.7 Flood Risk

A Flood Consequence Assessment has been prepared to inform and accompany the application. Advice was sought from Natural Resources Wales and Wrexham County Borough Council's Senior Flood Management Officer regarding standoff requirements in relation to watercourses. The design takes account of the advice to allow a 7m standoff from on-site ditches and the watercourse on the South - Eastern boundary of the site.

Natural Resources Wales flood zone mapping shows the site lies outside Flood Zone C, beyond the limit of the 1:1,000 year fluvial event. The FCA recommends swales be provided to mitigate against the possibility of increased surface water runoff from panels, and confirms that the solar installation is acceptable development in relation to flood risk.

4.8 Construction

For a solar installation such as this, the site preparation, construction and commissioning works are all expected to be completed within a period of approximately 12 weeks. Of this approximately 2 weeks will be site preparation, 6-8 weeks construction and after completion of construction, a period of approximately 2 weeks will be required for commissioning and testing.

It is proposed to form a temporary construction compound in the southern part of the site. This facilitates construction in an orderly manner, with all deliveries to the site made to this compound. There will be a requirement for more journeys at the start of the project, to deliver equipment to the site, with numbers reducing during commissioning phase of works. Based on a worst case scenario of the amount of equipment which any load can carry, and a 5 day working week, it is anticipated that vehicle movements will equate to approximately 2 HGV journeys per day over the construction period.

The solar equipment will be installed by starting furthest away from the compound and working back towards it. Temporary access routes will be formed within the site and designated crossing points provided for ditches, services & footpath as necessary and to meet service provider requirements and safety (see also 3.3).

Construction will only take place during daylight hours – no site lights will be erected.

4.8 Public consultation

The applicant held a public consultation event on 13 February to inform local people about the proposal and invite discussion. During the consultation, local residents questions were answered. No objections were recorded.

4.9 Policy

The UK is legally bound to realise 15% of its energy from renewable sources by 2020. The UK Government's strategy for solar power was recently set out in the "UK Solar PV Strategy: Roadmap to a Brighter Future" (October 2013). This confirms the importance of solar power and the contribution it can make to providing renewable energy.

Planning Policy Wales (Edition 6) makes clear the Welsh Government aims relating to achieving infrastructure necessary to achieve sustainable development objectives. The objectives include, "to promote the generation and use of energy from renewable and low carbon energy sources at all scales".

Support is also provided at a more local level in the Wrexham Unitary Development Plan. Policy PS12 supports the generation of energy from renewable sources provided that the wider environmental benefits are not outweighed by any detrimental impacts on the landscape public safety and the local environment. These factors are considered in the sections of the DAS above, and in a Supporting Statement submitted as part of the application. It is concluded that the benefits of the proposal are significant and the planning balance is in favour of the scheme.

5. Access

The site is not currently accessible to the public and this will continue to be the case. A Public Right of Way crosses part of the site, following an approximately North-South alignment from the road on the northern boundary, linking with the Bronwylfa Road to the South. The Right of Way will remain with no change to alignment. During the temporary period of construction, appropriate signage and safety measures will be put in place (see section 3.3). Following construction, the solar installation will be separated from the Right of Way by fencing erected around the equipment as described in Section 3, and hedgerow as described in the Landscape and Visual Appraisal.

6. Summary and Conclusions

It is proposed to use land at Legacy to generate electricity from solar energy. The installation would produce circa 3 KW, sufficient to power 800 – 900 homes.

Land between, around and underneath the solar panels will continue in grazing usage and there is no loss of agricultural land.

Surveys, assessments and reports submitted to inform the design and assess the proposal include:

- A Landscape and Visual Appraisal
- An ecology report (extended Phase 1 habitat survey)
- A Flood Consequence Assessment
- Arboricultural Impact Assessment (to BS 5837: 2012)

In addition, consultation has been held locally and with the Highways Authority.

All this work confirms that:

- the site is suitable for the use proposed
- there are no unacceptable impacts, and
- the scheme offers significant benefits, particularly:
 - renewable energy generation
 - landscape and biodiversity enhancements , particularly retention of all trees, hedgerow management and planting, and wildlife buffer zones.

The proposal represents sustainable development which has been designed to fit within the context and which complies with planning policy.