

# **Botley West Solar Farm: Representation to National Infrastructure Planning**

## **Summary**

This document summarises how the land, the population of the area and the heritage of the immediate area could be negatively impacted by the Botley West solar power station. Additionally it highlights key requirements that the developer has failed to address.

The main headings are:

- Impact on BMV land and Food Security
- Impact on the Green Belt
- Lack of adequate justification for the scale of the project
- Exacerbation of flooding events and developer's failure to adequately recognise and address
- Poor efficiency of massive solar generation in the UK
- Noise Impact
- Fire Risks
- Proximity to quite dense habitation
- Dangers of glint and glare to aircraft and proximity of Oxford airport
- Lack of any detail of monitoring and remediation techniques
- Possible results from storm damage
- Destruction of villages' amenities
- Highly negative impact on key heritage features
- Construction traffic impact on North Leigh parish
- Developer's failure to adequately examine alternative sites.

## **Loss of Best and Most Versatile (BMV) land and Food Security**

38% of the projected application is on BMV land which is currently used for growing crops. The estimated loss of food tonnage is 440,000 tonnes over the life of the project. Removing land from the agricultural land bank is a very poor policy in our very unstable world. West Oxfordshire District Council

regulations show that the use of BMV land for renewables is contrary to WODC policy.

## **Green Belt**

75% of the project is scheduled to be placed on Green Belt land.

The five Objectives of the Green Belt are:

- To check the unrestricted sprawl of large built-up areas.
- To prevent neighbouring towns merging into one another
- To assist in safeguarding the countryside from encroachment.
- To preserve the setting and character of historic towns
- To assist in urban regeneration.

This development will severely compromise 4 of those objectives

The developer falls back on central government's views on renewables to justify the exceptional circumstances required to pass the hurdle to build on Green Belt land

Openness is a fundamental characteristic of Green Belt land, and it has both spatial and visual dimensions. The Spatial element is the physical space of the land. The visual element includes long-distance views and visual links to the wider Green Belt.

The Botley West development will impact negatively both these key aspects of Green Belt designation.

The developer has not supplied the "Very Special Circumstances" required to justify building on Green Belt land.

## **Scale of the Project**

The developer has not justified the need for the vast scale of the project. There are already three times the number of solar farms in the pipeline that will be more than adequate to satisfy the target solar renewable energy requirement by 2035.

It is believed by many that the project has been proposed not for altruistic motives or to help satisfy the climate emergency but to generate large profits for Blenheim Estates, the owners of the land upon which the solar farm would be placed.

## **Flooding Risks - increased risk of flooding due to solar panels**

Latest peer reviewed science shows that solar panels do exacerbate flooding events. Independent and highly qualified and respected hydrology experts have categorically stated in an extensive report, the conclusions of which have been shared with WODC, that the proposed project adds significantly to the risk of flooding in the Cassington area. Parts of Cassington have been flooded twice over the past 2 years. With increasing climate change, these events can only increase in frequency over the life of the solar farm.

The independent report considers that the applicant has not demonstrated the feasibility or viability of their proposed drainage scheme

In particular, the report notes, “the lack of ground infiltration testing carried out by the applicant (is considered) to be a critical issue in that the Applicant has no understanding of the extent to which they will be able to infiltrate water into the ground and therefore they cannot determine with any confidence, the size of attenuation ponds they require or whether there is room for the required size of ponds where they will be required to be sited. “

## **Efficiency of Solar Generation in the UK**

The government’s Climate Change Committee (CCC) state that solar panels typically operate with efficiencies between 15 and 20 per cent, compared to between 30 and 50 per cent for wind.

Recent International Renewable Energy Agency (IRENA) data that shows that given the UK’s climate, Solar energy is within the worst 5% areas in the world to develop (large scale) solar electricity, as only 10%-11% of the capacity of Solar Farms will ever be generated annually compared to double that in places such as Spain, Australia and parts of the US. Compounding that inefficiency in the form of a vast solar farm with around 2.2 million solar panels would appear to be a folly.

## **Noise Impact**

There would be 3 sources of noise during the operational phase of Botley West

1. The major new substation to be built in the south near Cumnor

2. 6 secondary substations. Two to be in the southern section, three to be in the central section and one in the northern section
3. 156 solar inverters or power conditioning (PCS) systems

### **Main substation**

The NGET substation footprint would have footprint dimensions of approximately 180 metres by 150 metres and a height of between 12metres and 15 metres. This main NGET substation will contain 3 high voltage transformers. Exactly what type of transformers required within the main substation is not specified in the DCO application. But bearing in mind the estimated size of the structure, the noise level will likely be substantial. The transformers will operate 24/7.

There will be increased contribution to the overall noise level from the NGET site. This becomes more apparent at night-time and in the early morning where baseline sound levels in the area are lower.

### **Secondary Substations (6 in number)**

The height of each of these 6 secondary stations will be in the region of 4 metres to 6metres (including isolator). The widths will vary from 6metres to 10metres and the length between 12 metres and 18metres.

Each secondary station will contain up to 2 high voltage transformers. The noise output from the transformers in these large substations will vary between 73dB and 86dB . The noise-emitting element of each transformer has a height of approximately 6 metres. Three of the 6 secondary substations will be in the central section. The size of these structures indicates a substantial level of noise will occur. The transformers will operate 24/7.

The additional noise resulting from all transformers becomes more apparent at night-time and in the early morning where baseline sound levels in the area are lower.

### **PCS units (156units)**

Each PCS unit will have a height between 2.7metres and 3.5metres, widths between 12metres and 14metres and lengths between 2.2metres and 2.9metres.

The 156 PCS units are situated throughout the Project Site within the southern, central, and northern solar PV installation areas. The units are containerised systems each housing 2 solar PV inverters and 1 Medium Voltage (MV) transformer. The dominant noise source for these units is the inverters.

It is incorrect to assume that the solar PV inverters will not operate during the night-time. It is understood from experience with other solar energy schemes that the inverters 'ramp up' in the early hours of the morning.

## **Fire Risks**

Solar panels can occasionally catch fire spontaneously although the risk is low. Most fires associated with solar panels originate in the ancilliary equipment such as inverters, cabling, transformers, switchgear etc. Given the very large number of panels involved and the 6 secondary substations and the 156 PCS units, all of which will contain large numbers of transformers, inverters and switchgear, Botley West presents a very substantial 10 sq. km fire hazard, in many places without obvious access for fire control measures.

In 2023, an article published by The Independent revealed that from January-July 2023, 66 fires relating to solar panels had occurred in the UK, compared to the 63 fires that were reported for the whole of 2019.

Additionally, any fire will generate large amounts of pollutants which will contaminate the air in the immediate area of the fire, and which will leach into the soil and substratum and essentially poison the surrounding land as well as the groundwater.

## **Project Proximity to Habitation**

11,500 properties will be within 1.5kms of the solar panels. Nowhere else in the world does a solar farm on such a scale exist so close to quite dense habitation. The loss of many Public Rights of Ways (PRoWs) will lead to undue

stresses on the well-being of the communities who use the fields designated for solar panels.

## **Glint and Glare**

Numerous aircraft, both fixed wing and helicopters fly over the area at quite low levels. Many of these are military, often using Brize Norton military base. Civilian aircraft frequently use Oxford Airport which would be extremely close to the solar farm. Bearing in mind the undulating nature of the terrain upon which the solar panels will be placed, it is inevitable that glint and glare from the vast array of solar panels could have serious consequences for the pilots of such aircraft.

## **Proximity of Oxford Airport**

As an example of what can happen, a light aircraft that had taken off from the very close Oxford airport was forced to make an emergency landing on July 1<sup>st</sup> 2024 in a field that is scheduled to be occupied by solar panels next to the A44 Woodstock East, close to the Begbroke slip road.

## **Monitoring Granularity and Remediation**

It is not clear from the DCO application how the efficiency of the panels' ability to convert solar radiation to energy will be measured. It is assumed that devices to measure solar irradiance and energy conversion efficiency will be allocated to groups of panels so that deficiencies in certain panel groups can be detected. However, how the performance of the panels or groups of panels will be measured is not mentioned in the DCO application neither are the remediation techniques that will be required in the event of necessary repair. Also it is inevitable that deficiencies in energy production of groups of panels will require physical intervention to remedy falls in energy production. How this will be achieved is not mentioned in the DCO application.

## **Storm Damage and risk of flying splinters**

Storm Darragh in November 2024 severely damaged the Porth Wen solar farm in Anglesey. Hundreds of solar panels at the 190 acre solar farm were ripped from their foundation supports, blown to pieces and left strewn about fields.

The panels were installed only 2 years ago. The frequency of such storms will only increase with the continuing impacts of climate change. There is no indication how the developer intends to prevent this happening to their panels, where the area covered by panels will be approximately 10 times that of Porth Wen.

## **Destruction of Amenity**

The amenity of many communities in and around the Botley West site will be damaged by this project. Exposure to green space and the opportunity to exercise on locally available land have both physical and mental health benefits. The main PRoWs used by the residents of many villages will be severely degraded in terms of their visual aspect, from one of open farmland to one of a largely artificial landscape dominated by solar panels.

For instance, the developer's DCO application acknowledges that Combe village lies in a 'zone of theoretical visibility'. The highly prized views in and around Combe will thus be compromised.

As a further example, in the Cassington parish the most heavily used public rights of way from the village will be surrounded in large parts by solar arrays. Both the northern and southern sections of the Botley West site will be similarly impacted. Even though an extension of the network is offered with extra "permissive" footpaths, the consultation fundamentally ignores why people want to walk in the countryside – i.e. for their mental well-being. This would not be achieved by walking through a forest of fencing and solar arrays.

The solar panels will be visible from vast areas of West Oxfordshire.

## **Heritage**

The presence of a large scale solar farm within a few hundred metres of Blenheim Palace grounds would negatively influence the nature of the setting of Blenheim Palace. There is a risk that UNESCO could remove the World Heritage Status of Blenheim Palace as a result of this development.

The importance of the setting of Blenheim Palace in an essentially agricultural landscape is highlighted in Blenheim's own Revised Management Plan which was published in 2017.

This document discussed the high quality environment and local distinctiveness of the setting of the landscape around Blenheim. This document noted the damage that conversion of agricultural land to industrial developments such as solar farms could do to this landscape.

### **Construction Traffic Impact**

It is our contention that the A4095 road which passes through North Leigh parish will be adversely impacted during the construction and decommissioning phases of this project and likely during the operational and maintenance phases too. It is already a heavily used road and quite dangerous for vehicles emerging from housing estates immediately alongside the road. It is likely that further heavy lorry use during the construction phases will render the road more dangerous. The DCO application mentions Abnormal Indivisible Loads (AILs). No routes are determined for AILs in the DCO application, therefore their impact on the Local Roads Networks (LRNs) or Strategic Roads Network (SRNs) cannot be determined.

### **Developer's Failure to Address Alternative sites (PINS request 13<sup>th</sup> August 2023)**

PINS advised PVDP on 13<sup>th</sup> August 2023 that one of the requisites for a DCO was to show that alternatives eg alternative sites in this case have been examined. PVDP have failed to do this, although the potentially impacted parishes have shown that other sites to the north of the current area are more suitable due to fewer water courses, fewer valleys and a generally flatter topography . Such other sites are still within Blenheim Estates land.