Laxton and Moorhouse Solar Concerns local objections to the Great North Road Solar Park photovoltaic system

Summary

Laxton and Moorhouse Solar Concerns (L&MSC) object to the development of the Great North Road Solar and Biodiversity Park (GNR Solar) by Elements Green (Trent) (EG) for the following reasons:

Flooding

Laxton and Moorhouse are both susceptible to flooding (Appendix A) which will be exacerbated by the placement of solar panels on the slopes of the beck and its tributaries. The riparian mitigations included in the proposal are likely to increase, rather than reduce, both the regularity and severity of flooding to the villages, and their historical assets.

Ecological

The effects of citing the photovoltaic park in a rich and ecologically diverse temperate climate will be significant, affecting the runs of larger animals, such as deer and foxes, the hunting grounds of predator birds, such as owls and nightjars, and the habitat of smaller animals such as kingfisher, dormouse, hedgehog and hare . Given that 2 protected species, crested newt and barbastelle bat, have established footholds, in this area, it would be irresponsible to endanger their livelihood.

Agricultural Impact

Loss of farmland must be a deciding factor with much of the land used classified as Best Most Valuable (Class 1, 2, 3a/b) (See Appendix B). With other developments, Newark and Sherwood District will loose some 22% of its agricultural land from an area that produces 20% of agricultural output from 13% of land area. For a country that is only 60% sufficient in food, such a loss should be considered reckless.

Cultural

This largescale conversion from open fields to solar arrays will significantly change the nature of the landscape and local identity with many of the arrays being visible for miles in this undulating countryside. Hedging will not prevent this, but rather inhibit the vantage points for the heritage

assets and rural vistas. Mental health is a particular issue within rural communities, and this development will have obvious negative effects, as rows of glass panels and security fencing destroy the peace and tranquillity for all.

Needs Case

Whilst this may superficially seem like a necessary project, the needs case has not been made. Whilst grid connection is available, a solar array removes the capacity for other for suitable sustainable energy sources (such as small modular reactors) that would be far less invasive in their rural land usage. Food security is an equally important priority and failing to consider this in solar panel siting is flawed; as is their overall use in the UK, where they will never generate the power used to manufacture, site, operate and decommission. Whilst their cheap price provides an economic opportunity for developers, this is not a sound investment for the UK, or for world CO_2 production and its effect on climate change.

Introduction

The village of Moorhouse, accessed solely by single, narrow track lanes, sits in ancient agricultural land, currently classed as 'Best Most Versatile' by the Country Land and business Association (CLA). Strip farming is still practiced in Laxton and is held nationally as the most complete example of farming in medieval times. The District Council's Land Character Assessment (LCA), gives the area its highest rating in both character and conservation requirement, describing Moorhouse as having strongly unified elements and few distracting features [10]. It includes a number of Sites of Significant Scientific Interest and Biological SINC designations highlighting a strong habitat for wildlife, with good hedgerow networks leading into woodland. Their recommendations for Moorhouse Meadows include maintaining existing historic field patterns, conserving and enhancing ecological diversity of the woodland/vegetation, conserving the sparsely settled and open rural character and promoting measures for reinforcing the traditional character of the existing farm buildings. As the village lies in a shallow hollow, not only will the visual and flood impact on this rural community be significant for all properties, but significant noise reverberation in the "hollow" will have mental health implications for its residents In addition the removal of farming assets will also see farming disappear permanently from the community and the area, negatively impacting the wellbeing of the community.

Moorhouse contains several significant heritage assets, notably the nationally significant Grade II* listed Moorhouse Chapel, an attractive and notable landscape feature. Other listed buildings

in Moorhouse, include the 18th century farmsteads of Church Farmhouse, Aggrie House, and North Park Farmhouse.

In general, Laxton and Moorhouse Solar Concerns (L&MSC) are not against renewable energy initiatives (its lead taught Sustainable Power and Energy Engineering at Masters level) though take a more holistic view to include food security and geographical considerations. Whilst the East Midlands comprises 13% of England's farmed area, it produces 20% of its arable output [1] in a country that is only 60% sufficient in food production [2]. It therefore seems a poor use of Best Most Valuable agricultural land (BMV) for solar arrays. Equally, The East Midlands is not a good area for solar farm placement. Placing a similar array in southerly counties (50deg latitude) would experience 10% greater irradiated solar energy [3] and for 10% more sunshine hours per year. [4]. Finally, there are more than 250,000 hectares of commercial south facing roofing [5] that could be employed for solar capture and their distributed nature would lessen the need for distribution infrastructure upgrades. As such, whilst an excellent business opportunity exists for the developer, the Needs Case for The Great North Road Solar Array is weak and made less convincing by the developer's less than open attempts to deflect from this through unsubstantiated claims regarding Agri-voltaics and biodiversity.

Flooding

Moorhouse is uniquely situated within the proposed solar array in that it lies on the main drainage into the Trent for the array area. Lying in a shallow valley, Moorhouse already suffers, from flooding to its properties, roads, hedgerows from Moorhouse Beck and its tributaries. The Parish Flood report of 2023 highlighted that Laxton is surrounded by higher farmland and consequently receives its surface water run-off. (Supportive pictures in Appendix A) Downstream from Laxton, Moorhouse receives all of the Laxton water and additional surface water run-off from South Field, Kneesall Woods, Laxton Woods and North Wood [6]. 2023 saw Moorhouse Beck overwhelmed through Moorhouse causing flooding or near flooding to a significant number of properties. (Pictures at Appendix A.) It was notable that the flooding was not prolonged and was a function of the Beck and its tributaries being unable to handle the volume of water draining from the fields in this area. Any actions that exacerbate runoff will undoubtedly widen the flood damage area and should be prevented. In their work on the impact of solar panels on runoff, Biamonte et al's empirical research showed that peak runoff is increased 11 times from a field with solar panels compared to the same field with no panels in temperate climates [7]. The solar panels in and downstream of Moorhouse are in fields who's run-off is directly into the beck. This was raised with EG at the consultation phase [8] and their

response was to provide a riparian corridor through the panelled area. Unfortunately, being downstream of Moorhouse, this is likely to slow water flow away from the village, exacerbating, not relieving the flooding problem. Also raised during consultation was the issue of traffic damage to the bridges in Moorhouse and, or subsequent blocking of the beck or it tributaries downstream by construction debris. This resulted to a change in traffic plans. However, it is unclear how traffic will be policed to prevent the use of Moorhouse roads, acknowledged by Elements Green as being an issue, and as such, remains a risk. It is of note that the largest change to the solar panel array design following the Consultation Phase has been to remove areas of panels in the Carlton area that were in direct threat from flooding. It is disappointing that the same concern and mitigation has not been provided to the third party flooding risks.

Ecology and Biodiversity

The Bird Conservation Targeting Project (BCTP) identifies this area as significant for rare and declining farmland and/or woodland birds, in particular the lapwing, which is Red Listed by the Royal Society for the Protection of Birds (RSPB) and is a Priority Species under the UK Post-2010 Biodiversity Framework [9] and Wildlife and Countryside Act 1981 [10].

The Laxton Sykes is a Site of Special Scientific Interest for Great Crested Newts with Moorhouse and its surrounds lying within the Impact Risk Zone and confirmed by EG's own survey carried out by Notts University. The newts breed in ponds during the spring, but spend the majority of the year feeding on invertebrates in woodland, hedgerows, marshes and tussocky grassland, typified in the Moorhouse area. The UK's populations of the great crested newt are internationally important and are protected under the Wildlife and Countryside Act 1981 and the Conservation of Habitats and Species Regulations 2017. Solar Farm development in the Laxton and Moorhouse areas increase the risk to these endangered species.

It has been identified that solar farms can have a negative impact on biodiversity through compaction of ground, cutting of grass in between panels, distance between panels, and the fencing off of large fields that prevent wildlife such as deer, foxes, badgers and other medium sized mammals gain access to woodland and other "cover" areas. Currently Moorhouse has an exceptionally healthy population of wildlife including Tawny and Barn Owls, Buzzards along with Little Egret and Heron. All these broad range species will be negatively affected by solar farms current proposals. In 2017 a Natural England report stated that solar farms fragment habitats and solar panels can affect the movement of species, hiding places, preying strategies and availability of food. The size of this array will undoubtedly be significant from this perspective. In particular, the proposed changes to fields that border North Wood and Speakers plantation

woodland, would have a major ecological impact on wildlife. The inclusion of extra wooded areas is seen as gerrymandering in a delicate eco-system frequented by Barbastelle bats, a rare and endangered species. In effect the solar park proposals in this area would surround long established wildlife rich woodland, effectively cutting it off for many species, not to mention its catastrophic visual impact and the impact on many species during construction. No assessment has been made on the effect to migratory paths across the region.

Agricultural Land Classification and Impact

The whole of the area surrounding Moorhouse and Laxton are ancient and continued use farmland. In medieval times the whole of Laxton and Moorhouse Parish was strip farmed with maps from the 1600's detailing land use held in Laxton Church and in the Bodleian Library [11]. Today Laxton still operates a strip farming system under a Court Leet which is protected by a 2020 Parliamentary undertaking given by the Thoresby Estate.

In its Land and Character Assessment (LCA), Newark and Sherwood District Council describe the Moorhouse Meadows Landscape Condition as Good, and Sensitivity as 'High' with an overall aim of 'Conserve'. It considers Moorhouse to have strongly unified elements and few distracting features [12].

It is the significance to agricultural output that is most compelling however. The East Midlands region comprises 13% of agricultural area [1] but produces 20% of its arable output [2]. The area set aside for development is some of the most fertile that this region has to offer [13]. This is well established agricultural land with a dedicated and capable workforce ensuring continuing production. Many are tenant farmers, who will gain nothing from the development, and it is hard to see how such a workforce will still exist to reuse the land when the array is decommissioned.

As can be seen from the pictures in Appendix B, this is productive arable land.

Heritage

Moorhouse contains several heritage assets, notably the nationally significant Grade II* listed Moorhouse Chapel. Situated in open countryside north of the hamlet, the building is an attractive landscape feature. The chapel is mid-19th century (1860) and was built for J. E. Denison (1st Viscount Ossington) in a medieval French Gothic Revival style by the architect Henry Clutton (1819–1893), an English architect of national repute. Grade II* buildings are particularly important buildings of more than special interest (only 5% of the 374,081 listed buildings in England are Grade II* or above). The Chapel is therefore distinctive and has

significant special architectural and historic interest. Other listed buildings in Moorhouse, including Church Farmhouse, Aggrie House, and North Park Farmhouse, essentially 18th century farmsteads that characterise the Georgian aesthetics of the rural builds in this area. Local landowners in this area such as the Earl Manvers (see White's Directory of 1835 for example) were responsible for maintaining these historic farmsteads and cottages from this period and are today managed under the Planning (Listed Buildings and Conservation Areas) Act 1990. Given the Historic England Guidance that great care should be taken to ensure heritage assets are conserved in a manner appropriate to their significance, including the impact of proposals on views important to their setting it is felt that the solar arrays in adjacent fields compromise the approaches and vistas from the Grade II* listed Moorhouse Chapel.

Cultural

This largescale conversion from open fields to solar arrays would have disastrous consequences for the nature of the landscape and the local identity. Solar panels dramatically alter views of the countryside and the key features that punctuate it. Some adjacent fields are on north facing slopes and the impact of solar panels would be seen for may kilometres in a north/south direction. The largescale use of hedging will actually exacerbate the loss of view as they seek to screen the panels, and the enclosure of rural footpaths will change them into sterile walkways rather than vantage points for appreciation of heritage assets and rural vistas. The countryside is an amenity, enjoyed by many locals and visitors. With mental health, particularly male suicide, being a significant aspect of concern within rural communities, such losses are likely to have a negative effect on the health and wellbeing of the community and to those who visit to seek solace from its vistas. Continuous rows of glass panels completely alter landscape character whilst security fencing and the intrusion of CCTV destroys the peace and tranquillity.

The Zero Carbon Academy [14] suggest that at end of life (around 25 years) 'the land should be restored as close as possible to its original state. To do so may require replanting of vegetation or crop, soil remediation, and/ or methods to improve and restore biodiversity.' Given that this is predominantly farmland, it is hard to see how farmers would simply be available after 30-40 years of non-production (including commissioning, operation and decommissioning) to recommence farming, or that the fallow and compacted land would be capable of its previous returns. Equally, given that some land is nominated for tree planting and other ecological development, it is unclear what should happen to this land during decommissioning or the arguments behind future use.

Noise and Traffic

Elements Green (Mr Noone, Ossington Meeting, 20/6/24) have previously suggested that work will be in 3-4 month windows of work for 2 years, though it is doubtful that this will be a requirement placed on the construction contractors. The Noise Risk Assessment for these activities is not clear for both wildlife and inhabitants. Given that Health and Safety Executive noise exposure limits [15] are unlikely to be breeched in public areas, concern exists regarding Statutory Nuisance (Environmental Protection Act 1990) [16] over extended periods and details of work limits beyond the normal working day, public holidays etc. and we would look for assurance that this has been dealt with at an appropriate level of probity.

Needs Case

Finally, the Needs Case for this array development has not been made. Although the established connection to the National Grid distribution network is suitable, solar arrays are not the only solution to sustainable energy production, with reduced footprint Small Modular Reactors having a number of advantages over distributed solar arrays, not least being their positioning within existing and decommissioned power station sites that exist on the network. Given that solar arrays have a place within the still immature technological gamut for sustainable energy, their siting on Best, Most Valuable farmland is not appropriate. Food security is equally as important as energy security and the willingness to ignore one when considering the other is flawed. The placing of solar panels in this geographical location, or further north, fails to maximise the benefits of their use (eminent research suggests a net energy loss during solar panel lifetime when placed north of 47 deg latitude [17]), making them a poor technological solution for the UK in Climate Change measures. If their use is to be included in a UK policy, siting a similar array at 50deg latitude would experience 10% greater irradiated solar energy [3] and for 10% more sunshine hours per year. [4]. Finally, there is more than 250,000 hectares of commercial south facing roofing [5] that could be employed for solar capture and their distributed nature would lessen the need for distribution infrastructure upgrades. As such, whilst an excellent business opportunity exists for the Developer, the Needs Case for The Great North Road development is weak and made less convincing by Elements Green's less than open attempts to deflect from this through unsubstantiated claims regarding Agri-voltaics and biodiversity.

It is recognised that an over production of solar panels abroad has made such solar farms financially attractive to investors, but it is less clear who will benefit from such financial benefit

and how any solar production reduces electricity prices for the consumer under the dogmatic 'Contracts for Difference' pricing calculation. Equally, purchase of foreign equipment, merely exports UK CO2 production and at levels over which we have no control.

Conclusion

Concerns which prevent the construction of this development include:

Flooding, with evidence that solar panels adjacent to Moorhouse Beck and the riparian proposals will exacerbate flooding to what is already a flood prone area and will cause flooding in properties that so far have been spared.

Ecologically, little evidence exists for the effects of siting such a large panel arrays in a rich and ecologically diverse temperate climate. However, it is obvious that the effects will not be minimal, and therefore of significant concern where 2 protected species have established footholds.

Loss of farmland must be a deciding factor. With other developments, Newark and Sherwood District will loose some 22% of its agricultural land in an area that significantly outperforms national output. For a country that is only 60% sufficient in food, such a loss should be considered reckless.

The detrimental effect on cultural assets and the loss of local identity cannot be mitigated against with such a significant construction. Moorhouse contains several heritage assets, including the nationally significant Grade II* listed Moorhouse Chapel. Situated in open countryside north of the hamlet, the approaches and vistas will be directly affected by the construction of solar panelling in adjacent fields, breaking the guidance given by Historic England in the protection of such properties. Hedging will not prevent this in this rolling countryside. EG make the claim that extensive hedging will mean that the solar panels will not be visible. As can be seen in Appendix B, this is not credible in the rolling countryside that this development would occupy.

The Traffic Plan and Noise Risk Assessment have been altered to reduce traffic flow through Moorhouse, but simply shifts the still required flow to other, inappropriate roads and areas. Its policing remains unclear.

Finally, the Needs Case for this array development is not established. Whilst it is an economic opportunity for investors and developers, the sacrifice of substantial agricultural land cannot be

seen as a viable UK investment through this technologically weak and geographically inappropriate solution. Compromise of food security for energy security should not be considered when alternatives exist without such concession. Equally, exporting our CO2 production to foreign manufacturers does not reduce climate change.

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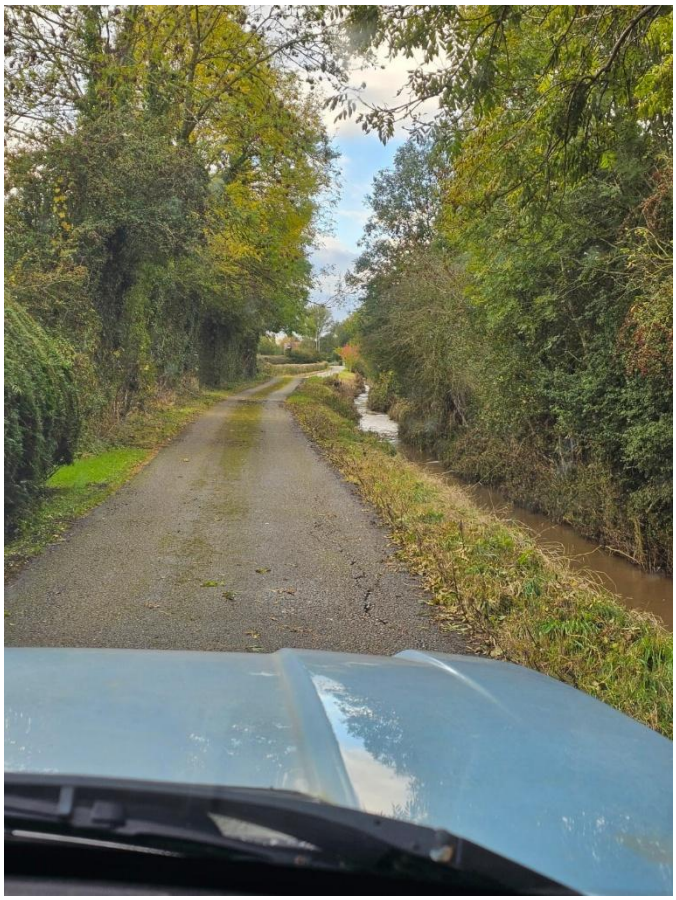
Appendix A

Flooding pictures Moorhouse, 2023.



Appendix B

Crops in fields N1, N2, N3 and N4 identified in Landscape Masterplan [18] EN010162/APP/2.11ES Reference - EN010162/APP/6.3.5.2, Revision number 1, June 2025

Field N4 with N5 in distance

Field N4

Field N3 with N1 and N2 in the distance.