7000 Acres

7000 Acres Reply to West Burton ExA First Questions

Deadline 3 Submission – 9th January 2024

1 General and Cross-topic Questions

1.1.1 Revised National Policy Statements

1.1.2 Energy National Policy Statements

Please refer to 7000Acres Deadline 3 Submission, "Reply to West Burton ExA First Questions: Supplementary material covering detail of evolving NPS landscape".

1.1.3 Operational Lifetime of Proposed Development

In response to ISH1 discussions [REP1-052], the Applicant confirms that the dDCO amends the Requirement 21 to require decommissioning to take place within 60 years of the final commissioning date of the Scheme. However, paragraphs 1.1.5 and 2.3.1 of the revised Operational Environmental Management Plan [REP1-038] states that the operational lifetime of the Proposed Development would be 40 years and decommissioning is estimated to be no earlier than 2066. The Applicant is asked to consider the implications of a 60 year operational period update this document accordingly.

As the Applicant has chosen to apply a Rochdale Envelope to this scheme, 7000Acres requests they comply with the requirements in Advice Notice Nine, especially section 1.4 third bullet, that requires *"there is **consistency across the application documents** including any other relevant environmental assessments (e.g Habitats Regulations Assessment (HRA) or Water Framework Directive (WFD) assessment)."* As a general point, the major changes in timespan, cable routing and on other points has led to a lack of consistency in the various documents, making it difficult for IPs, and more importantly the ExA, to assess what the Applicant is actual seeking to do. The lack of background detail in their documentation, where they only show their conclusions, and not the detailed assessment that led to the conclusions, further adds to the opacity of their case.

1.1.4 Operational Lifetime of Proposed Development

In response to ISH1 discussions [REP1-052], the Applicant confirms that the dDCO amends the Requirement 21 to require decommissioning to take place within 60 years of the final commissioning date of the Scheme. However, paragraphs 1.1.5 and 2.3.1 of the revised

Operational Environmental Management Plan [REP1-038] states that the operational lifetime of the Proposed Development would be 40 years and decommissioning is estimated to be no earlier than 2066. The Applicant is asked to consider the implications of a 60 year operational period update this document accordingly.

As the Applicant has chosen to apply a Rochdale Envelope to this scheme, 7000Acres requests they comply with the requirements in Advice Notice Nine, especially section 1.4 third bullet, that requires *"there is **consistency across the application documents** including any other relevant environmental assessments (e.g Habitats Regulations Assessment (HRA) or Water Framework Directive (WFD) assessment)."* As a general point, the major changes in timespan, cable routing and on other points has led to a lack of consistency in the various documents, making it difficult for IPs, and more importantly the ExA, to assess what the Applicant is actual seeking to do. The lack of background detail in their documentation, where they only show their conclusions, and not the detailed assessment that led to the conclusions, further adds to the opacity of their case.

1.1.6 Solar PV Panels

The Applicant explains in the ES Chapter 4 [APP-042] at paragraph 4.5.5, that due to the rapidly developing range of technologies for PV panels, the generating capacity, technology type and size of the individual panels are not specified in the DCO application. Rather, the maximum total surface area of all PV panels is limited to the area shown on the Works Plan [APP-008] for Work No. 1. Nonetheless, the indicative landscape section [APP-284] and illustrative site layouts [REP1-022] have been produced suggesting dimensions and suggested positions for the solar PV Modules. The Applicant is asked to please: a) Give an indication of how many panels would be present in the indicative site layout; b) Comment on the implications for improvements in technology on the effect for the output from the generating station and the input to the national grid (addressing any cap that may be imposed) should more efficient panels be installed; c) Comment on whether there would be a reduction in land take visual effects or number of solar arrays should more efficient panels be introduced or whether this would be used to increase output; d) If so, is this consistent with

the offer in relation to the grid connection and could the Battery Energy Storage System accommodate an increased load?

7000Acres accepts that apply a Rochdale Envelope to a project of this type is reasonable. However, Advice Notice Nine reminds us that detail is required in order to assess the worst case. Advice Notice Nine states:

"2.3 To understand the implications arising from the comprehensive consideration of the issues by the Judge (Sullivan J. (as he then was)) in Milne (No. 2) ('the Judgment'), it is helpful to note some of the key propositions, as follows:

- *the assessment should be based on cautious 'worst case' approach:*
  "such an approach will then feed through into the mitigation measures envisaged […] It is important that these should be adequate to deal with the worst case, in order to optimise the effects of the development on the environment" (para 122 of the Judgement);
- *the level of information required should be:*
  "sufficient information to enable 'the main,' or the 'likely significant' effects on the environment to be assessed […] and the mitigation measures to be described" (para 104 of the Judgment);
- *the need for 'flexibility' should not be abused:*
  "This does not give developers an excuse to provide inadequate descriptions of their projects. It will be for the authority responsible for issuing the development consent to decide whether it is satisfied, given the nature of the project in question, that it has 'full knowledge' of its likely significant effects on the environment. If it considers that an unnecessary degree of flexibility, and hence uncertainty as to the likely significant environmental effects, has been incorporated into the description of the development, then it can require more detail, or refuse consent" (para 95 of the Judgment);"

As a general comment, the Applicant has consistently failed to apply a reasonable worse case assessment and frequently relies on wishful thinking, such as improvements in future technology without supporting evidence, to mitigate harm.

1.1.11 Government Net Zero Commitment

Provide a summary of the effect on, and the implications for, the Government's Net Zero and climate change commitments should the Proposed Development in isolation, or in conjunction with others, not be implemented.

The key underlying point, should the proposed development not be implemented, is that there remains a clear path by which the UK Government can achieve its 70GW ambition for solar capacity.

Please also refer to 7000Acres answer to Q1.9.4 (Statement of Need), which provides details of Germany's approach to solar deployment. Germany represents a compelling case-study for solar deployment without extensive deployment of large-scale ground-mounted solar, having already deployed over 70GW of solar without a single scheme anywhere near the scale proposed by the Applicant.

The 7000Acres WR REP1A-026 describes in Section 3 the potential for rooftop solar to provide the predominant volume of capacity, through only considering a subset of domestic and commercial rooftops, as identified in reports by the UK Warehouse Association and Ecotricity.

The WR also describes the volume of solar schemes that are either included in the UK Government's Renewable Energy Planning Database (REPD) or the National Grid TEC register – which includes a queue of schemes with a combined capacity of over 130GW. Such a pipeline does not include any prospective rooftop solar, so it is clear that uncontrolled deployment of ground mounted solar would simply render rooftop solar unnecessary – leaving rooftop space unoccupied, and land consumed by solar which may well have been better used for other direct decarbonization measures or to meet other demands that similarly have no alternative to using land, such as food production, housing, commercial development, reservoirs or recreation and green space.

Not approving such large-scale schemes will have the effect of discouraging extremely large-scale ground mounted solar developments, and in so doing provide time for the evolution of greater co-ordination and planning of the energy system as well as greater certainty over the

role land will play in the decarbonisation journey – including how the country would deliver the 30-70,000hectares of trees per year, called for by the UK Climate Change Committee.

Crucially, the UK CCC report ("Delivering a reliable decarbonised power system, Climate Change Committee", March 2023) notes that build rates for solar remain "close to historical peak". It describes the estimated installation rates to meet the 70GW ambition by 2035 as requiring 4.3 GW per year of solar and "4.1 GW of solar having been achieved historically".

The current economics of energy and solar panels is making rooftop solar an attractive proposition once again, after a lean period following the removal of Government support for installation of rooftop solar (see "Home solar panel installations fall by 94% as subsidies cut", Guardian article, 5th June 2019). Rates of rooftop deployment are now rising again.

Not approving the proposed development simply avoids a situation of committing to consent one of many developments that may only serve to use land inefficiently and be a cause for regret. Given that rates of solar deployment are already healthy, the Government ambition for 70GW of solar can be achieved without the need for such large-scale ground mounted solar schemes, or the associated increase in rate of solar deployment that is advocated by the Applicant.

1.1.12 Battery Energy Storage Systems

It has been suggested in the Written Representation (WR) made by 7000 Acres [REP1A-021] that there is currently insufficient evidence for the ExA to conclude that an energy trading Battery Energy Storage System (BESS) would be Associated Development, or an aim in itself. It is also suggested that the Applicant has not provided evidence why a BESS of this size is required, why its capacity should be uncapped, and why it needs to trade energy with the National Grid. The Applicant is asked to please respond to the points raised, where relevant providing evidence to support its position.

For example, in December and January the electrical generation by solar panels is minimal. At the same time a BESS would be used to store power during the day, typically wind generated electricity, to sell back to the National Grid at peak times, earning multiples of the

daytime price. This is clearly an additional source of income, and so the BESS falls outside the PA(2008) Guidance on Associated Development.
7000Acres agrees that storage of this type is required but should be located on brownfield sites. It should be consented under the Infrastructure Planning (Electricity Storage Facilities) Order 2020, as required by EN-1 section 3.3.29, and not under a Trojan Horse of a solar NSIP.

1.1.18 Neighbourhood Plans

Your Relevant Representation (RR) [RR-001] states that there is a failure to consider neighbourhood plans. Noting the reference to neighbourhood plan policy provisions at Appendix D of the Planning Statement. [APP-313] 7000 Acres is asked to provide further explanation of this concern.

APP-313 Appendix D provides a detailed cross-referencing exercise but does not address the fundamentals of the planning requirements and objectives that have been set out at a high-level, covering themes of economic development, particularly in the Central Lincolnshire Local Plan (CLLP) (April 2023) and the Local Industrial Strategy (LIS) (2021). The LIS is not considered at all in APP-313. Extensive large-scale solar would undermine regional objectives for the agrifood and visitor sectors. With regard to renewable energy, the key areas of focus for the region are the stated as being the development of offshore wind, as well as carbon capture and storage to support decarbonisation of gas infrastructure. These have been described in more detail in 7000Acres WR REP1A-24, Section 6.

1.1.19 Comparable Scale Infrastructure

Noting the proposed heights of PV panels above ground level, and sub-station heights, please can the Applicant provide, if available, reference to a comparable solar farm with regard to height, massing of associated infrastructure, and manoeuvrability of panels?

The Heckington Fen solar project is reducing panel size from 4.5m in height after addressing concerns from local residents and the Sunnica Solar Project is limiting the height of solar PV panels to 2.5m. These comparable scale projects illustrate that it is feasible for the companies and applicants involved to operate with 2.5m panels. Therefore, specifying

panels greater than this and up to 4.5m panels, is a matter of choice for those involved. The difference from 4.5m to 2.5m high panels is significant in terms of landscape and visual amenity, amongst other things.

2 Agriculture and Soils

1.2.3 BESS - BMV and Land Coverage

ES Chapter 19: Soils and Agriculture [APP-057] states there will be no loss of agricultural land resource during operation. However, with the Substations, BESS and access tracks, it appears that some resource would inevitably be lost resource during operation. Additionally, the area proposed to be occupied by the Substations and Battery Storage infrastructure in the ES Chapter 19 [APP-057] paragraph 19.9.2 is noted to be approximately 6ha, whilst elsewhere it had been set out as 4.27ha. The Applicant is asked to: a) please clarify the amount of land this type of infrastructure will occupy. b) Set out (or signpost) to the potential impacts of elements of the project by land coverage. This should include permanent infrastructure; temporary solar PV arrays; and other mitigation and enhancement options (i.e. Biodiversity Net Gain areas). It would be helpful if shown within an additional table showing the Agricultural Land Classification (ALC) grade and proportion of all areas of each permanent and non-permanent item across the full DCO limits.

This is yet another example of the inconsistent and vague case submitted by the Applicant. Once again, they have failed to follow Advice Notice Nine section 1.4 and section 2.3.

1.2.4 BMV – National Policy Statement for Energy EN-1

Even at a 40-year operational life, the Applicant's proposed scheme fails to take a sufficiently broad consideration of sustainability. In terms of land, the Applicant has continued to focus on the technicalities of Agricultural Land Classification, holding on to the proportion of land that is 3a versus 3b, rather than how land can best be used for competing pressures, including for decarbonisation, as highlighted by the UK Climate Change Committee, which expects land to be used for direct decarbonisation measures – tree planting and establishing peatlands, as well as crops for biofuels.

Should the 3a/3b classification remain a factor, the existing NPS states that the inspector should give little weight to the loss of poor quality land (including 3b), "except… in areas… where particular agricultural practices may themselves contribute to the quality and character of the environment or the local economy."

Notwithstanding the unusually high proportion of land that has been assessed as 3b, it is clear that within the area of West Lindsey in which the West Burton Solar Project is proposed, there is a demonstrable link between agriculture, the environment and the local economy, therefore the exception should apply.

In terms of the "emerging" NPS EN-1, this states "Where development of agricultural land is demonstrated to be necessary, areas of poorer quality land should be preferred to those of a higher quality" (this principle of a "hierarchy" of preferred land use is further expanded in emerging NPS EN-3). In the case of West Burton, the Applicant has focused entirely on the quality of agricultural land, not demonstrated necessity to use agricultural land.

In addition, there is a clearly implied hierarchy in the list of land that should be used for ground-mounted solar. Emerging NPS EN-3 section 2.10.29 states: *"applicants should, where possible, utilise previously developed land, brownfield land, contaminated land and industrial land. Where the proposed use of any agricultural land has been shown to be necessary, poorer quality land should be preferred to higher quality land avoiding the use of "Best and Most Versatile" agricultural land where possible."*

The wording is clear therefore, in that agricultural land should be used *after* these other land classes have been explored, *and only where* use of agricultural land has been shown to be necessary. The Applicant has failed to identify any previously developed land, brownfield land, contaminated land or industrial land for any of its proposed development, and the Applicant has failed to make any case that using agricultural land at this scale is at all necessary.

1.2.7 Soil Health

a) Please can the Applicant, and optionally other Interested Parties, set out their views and evidence on the impact of a temporary solar development on soil health.

The soil structure consists of niches, pores filled with water, swimming organisms, moist air, large pores, decaying matter, acidic conditions and temperature values. There are billions of living organisms belonging to thousands of species living within soil. Predators, prey, producers, consumers and pests exist below grown. There is a community of living

organisms which is as intrinsically complex and valuable as us. Soil harbours much of earth's genetic diversity. Like air and water is an important component of larger eco-systems. Therefore, soil quality is as important as air and water quality.

The Applicant claims that only the top layer of soil will be affected. There is an important eco-system at each depth of soil. The upper few centimetres are key, to plant growth/biological diversity/carbon storage and certain hydrolic processes. The interface between soil and the atmosphere is where living organisms are most diverse and numerous (e.g. vegetation). This surface layer physical condition determines whether the rain will soak in the ground or run downhill on the land surface.

The destruction of the soil structure will set back years (100's/1000's) of soil formation back to zero.

With climate change, drought conditions are predicted to become more frequent and more extreme as are wet conditions. The soil structure will be detrimentally affected by the scheme and as such, the storage of carbon and moisture within the heavy, moisture retentive soils in the area will be depleted. Biodiversity will be harmed as food supplies for birds and mammals will be significantly reduced. (see 1.3.2)

In addition:

- Moisture Retention: The shade provided by solar panels helps to reduce evaporation and retain soil moisture. This is particularly beneficial in arid regions where water scarcity is a major challenge. Unfortunately, water scarcity is not a regular feature in the West Burton Solar Project area.
- Reduced Erosion: Solar panels act as a protective barrier against wind and rain, preventing soil erosion. Erosion is a significant issue in agricultural lands, as it depletes the topsoil and damages crop productivity. The high clay content of topsoil in the West Burton Solar Project area reduces that potential for soil erosion.
- Temperature Regulation: The shade provided by solar panels helps regulate soil temperature, preventing extremes that can harm microbial life and nutrient availability. This is especially important in hot climates where high temperatures can negatively impact soil health. Unfortunately, you cannot describe the West Burton Solar Project as being proposed in a hot climate.

- Chemical Leaching: Certain cleaning agents used to maintain solar panels may contain chemicals that could leach into the soil, potentially affecting its quality. What mitigations are proposed by the West Burton Solar Project?

1.2.9 Food Security – Material Planning Consideration

Following impacts on food supply chains and shortages in UK shops in 2022, the Environmental Audit Committee decided to examine food security in light of climate change. In November 2023, they published their report "Environmental change and food security"[1].

In terms of land use, the EAC note that "land use issue affects not just the national food system but also the global food system". The pressure on land use is well understood; "the UK's scarce land needs to perform multiple functions which include producing food, providing homes, connecting places through transport infrastructure, sequestering carbon, restoring nature, growing timber and energy crops, generating renewable energy, protecting against floods, and leisure".

The EAC is very supportive of the Government's commitment to develop a Land Use Framework, which "offers a vital opportunity to ensure that English land performs the many functions required of it, including food production, while also supporting the Government's net zero and nature targets".

Regardless of ALC classification, the proposed West Burton Solar Farm makes material use of productive agricultural land, which will impact on food and non-food crops. It is clear that the EAC felt sufficiently concerned about recent experiences with regard to food security to launch an investigation and have made clear recommendations to address their findings. One of the three key pillars in their findings is that "we need to adapt our food and farming system to become more resilient".

It is clear therefore that security of food must be considered when considering the withdrawal of extensive areas of agricultural crop land from production for an extended period of time, particularly when such land faces such overwhelming pressure. In terms of

[1] Environmental change and food security (parliament.uk)

UK resources therefore, 7000Acres believe that food security is a material planning consideration.

7000Acres maintains that the nation's food security is a material planning consideration. Food security is a basic premise for man's survival. It is a primary consideration of all governments. If, as the Applicant states food security is not a material planning consideration, then it is fundamentally clear that planning system is not fit for purpose if it cannot allow for this basic need of society.

1.2.17 Temporary Loss of Agricultural Land

The Applicant's confirmation that there is "no obligation for land to return to arable production" confirms the fears of many in the community, who believe that, should the land be consented, it will become a permanent solar installation.

The Applicant cannot "have it both ways". Many of the Applicant's arguments are based around the installation being "temporary", therefore harms are in some way "short-term". Similarly, in terms of soil quality, the Applicant argues this will be an improvement, and yet this would only become relevant if the land is returned to agriculture. The Applicant is seeking for their scheme to be simultaneously temporary and yet gain the benefit of flexibility for the change not to be so.

The production of food for the nation is a vital and core skill and industry which needs protection for all our benefit. The loss of the land to the solar industry and with "no obligation for land to return to arable production" will mean that funding, knowledge, education and skills in farming will be lost. The heart of the region is agriculture. The history, community, education, tourism, business (to name a few), all rely on the agriculture industry and heritage. If a large proportion of the land is covered in solar panels and associated equipment, it is in inevitable that farming skills and knowledge will not be retained as the Applicant has stated.

1.2.21 Current Yield and Likely Changes

a) Has the Applicant quantified the current yields in terms of arable, pasture and livestock and what is the estimated loss in yield due to the Proposed Development? Can this be provided? b) Please can the Applicant a commentary on what grade these yields have been, or estimated loss will be. c) If possible, please assess what proportion of UK production this is and provide a commentary on the replacement of these.

7000Acres requests that the loss of agricultural production, and hence the need to replace this loss of production by the importation of crops, should be taken into account in the Applicant's Chapter 7: Climate Change. The same point applies to Question 1.2.23.

1.2.22 Displacement of Food Production

Beyond food production, it is important that displacement of all crops is understood. Where crops are for animal feed or for bio-fuels, then this will have still an impact. Given the primary purpose of the scheme is energy for decarbonisation, it would be counterproductive to adversely impact the carbon footprint of crops in their existing uses.

The Applicant does not appear to have considered the displacement effects on any of the crops they are impacting.

3 Biodiversity and Ecology

1.3.2 Effect on Bats

Paragraph 9.7.93 of ES Chapter 9 [APP-047] states that the effects of the installation of solar panels on bat activity and the activity of their prey is largely unknown. Can the Applicant please provide commentary to explain how confident it is that it is "probable that these impacts on bats will be largely neutral".

With increased light levels and noise disturbance and the reduction in habitats and prey due to eco-system depletion, it is more than probable that the impact on bats will be negative and therefore, highly improbable that, as the Applicant has stated, *"these impacts on bats will be largely neutral".*

1.3.8 BNG in the UK

The RR submitted by 7000 Acres [RR-001] states that "Solar farm biodiversity net gain claims are unproven in the UK at this scale". Can 7000 Acres please explain why it considers BNG is unproven in the UK at this scale and the concern.

"Solar farm biodiversity net gain claims are unproven in the UK at this scale", is a clear statement of fact because:

- Biodiversity Net Gain is a very new addition to planning requirements in the UK, having been due to apply in November 2023, it is now due to come into force from January 2024, and apply to Nationally Significant Infrastructure Projects in 2025[2].
- There is very little experience or track record of its use as a methodology, and while a number of case studies have been published, e.g. by Natural England, these are hypothetical illustrations of the methodology, and cover relatively small areas of development (<10ha.) in comparison to large scale solar development (e.g. West Burton at over 1000Ha.)

[2] Biodiversity Net Gain moves step closer with timetable set out - GOV.UK (www.gov.uk)

- Natural England Report NEER012[3] reviews the impact of solar farms on wildlife and ecology. It concludes that "The lack of evidence available relating to the ecological impact of solar farms is concerning" and that "more needs to be done to understand the interaction between these new [renewable energy] technologies and the ecology that they are ultimately designed to protect".
- There is no experience of the life cycle of large-scale solar development in the UK. The largest solar park operating in the country at present is Shotwick Solar Park at 70MW, which was commissioned in 2016, i.e. well prior to BNG requirements. Shotwick Solar Park covers only around 10% of the land area of the proposed West Burton Solar Project.
- Criticisms have been levelled at the BNG methodology (e.g. Guardian article "New biodiversity algorithm 'will blight range of natural habitats in England'"[4], 21/07/2021), that it does not always properly value specific landscapes in the algorithm, for instance scrub, which may be a feature of rewilding projects, as well as sand quarries and field margins. It is also considered that the BNG fails to consider connectivity of habitats – which is a particularly relevant consideration given the distributed nature of parcels of solar development in the West Lindsey area, including WBSP.
- For the WBSP biodiversity assessment much of the baseline is farmland, which has a relatively low "points" value under the BNG methodology. The assessment takes this low baseline and assumes there is no improvement in farming practices and contribution to BNG over the lifetime of the project, despite clear pressure on farming to improve practices in multiple dimensions, e.g. to reduce pesticide use, reduce carbon intensity and improve biodiversity.
- For the WBSP, the BNG assessment has been carried out before the updated version of the BNG Metric methodology[5] (4.0), issued from March 2023. While it is acknowledged that the updated methodology is unlikely to have a significant impact on outputs, the Biodiversity Metric 4.0 is considered to be a "substantial update",

[3] Evidence review of the impact of solar farms on birds, bats and general ecology 2016 - NEER012 (naturalengland.org.uk)
[4] New biodiversity algorithm 'will blight range of natural habitats in England' | Biodiversity | The Guardian
[5] The Biodiversity Metric Supporting Documents - JP039 (naturalengland.org.uk)

and so the BNG assessment should be reviewed to improve the accuracy of the result.

- A review of BNG information has been collated from "early adopter" councils, in a report by the Leverhulme Centre for Nature Recovery[6] [7](linked to Oxford University). They describe a poor track record of policies to address ecological harms arising from infrastructure expansion, describing a history of "weak compliance". For the UK's BNG policy, they highlight "governance gaps that risk undermining the policy's ecological outcomes".
- The same report also finds that "21% of applications contained a simple recurring error in their BNG calculations, half of which have already been accepted by councils, hinting at under-resourcing in councils assessing developments". Therefore, as the Applicant has only shown the output of their BNG study, rather than shown the details of their "workings out", it is suggested that this information is made available and thoroughly audited.
- BNG relies upon the delivery of improvements, as planned. The action of construction of WBSP at its extensive scale cannot fail to adversely impact habitat in the short term, e.g. removal of hedgerows, disturbance of ground to install foundations, additional traffic movements. The long-term net improvement is vulnerable to weaknesses in the both the underlying assumptions in the BNG improvement plan and the effectiveness of its deployment, this is in addition to the underlying governance risk, highlighted above.
- One of the key concerns of 7000Acres is the lack of a holistic view of decarbonisation and sustainability, e.g. considering energy, or biodiversity without considering land use. The Geospatial Commission report "Finding Common Ground: Integrating data, science and innovation for better use of land"[8] references a recent Royal Society report[9], stating that analysis "indicates the extent to which the UK's land is "overpromised". The Royal Society estimates that approximately 1.4 million hectares

[6] Leverhulme Centre for Nature Recovery | Fixing the gaps in England's 'biodiversity net-gain' policy (ox.ac.uk)
[7] Achieving biodiversity net gain by addressing governance gaps underpinning ecological compensation policies (wiley.com)
[8] Finding common ground: Integrating data, science and innovation for better use of land - GOV.UK (www.gov.uk)
[9] DES7483_Multifunctional-landscapes_policy-report-WEB.pdf (royalsociety.org)

of additional land (equivalent to the area of Northern Ireland) would be needed by 2030 to meet current policy targets for net zero and biodiversity (if current agricultural production, diets and food waste remain static). This rises to 4.4 million hectares by 2050 (over twice the land area of Wales and 18% of total UK land area)."

- Withing the Natural England report (TIN101) "Solar Parks: Maximising Environmental Benefits"[10], solar parks are defined as being "installations of multiple solar photovoltaic (PV) modules, usually mounted 1.5- 2.5 metres above either greenfield or brownfield land occupying between 2 and 15 hectares." In terms of landscape the report states that "it is recognised that solar parks can change the character and visual experience of a given area or landscape". Although this report is now over 10 years old, it is clear that the scale of the WBSP, the absence of it making use of any brownfield sites, as well as the choice of 4.5m panel height all create significant potential for maximising environmental harms.

Further reference is made to BNG concerns in Section 10 of 7000Acres WR on Landscape REP1A-20).

On the basis of the above, 7000Acres believe that it is, in effect, a huge experiment to rely on the BNG methodology to deliver actual improvements across such a vast and unprecedented area of development as the WBSP, particularly when considered alongside other super-large-scale ground mounted solar farms in the region. There is also a low base of confidence in such schemes having historically delivered ecological improvements to mitigate harms from infrastructure development.

7000Acres therefore would therefore propose that little weight is afforded to claims for the WBSP to improve BNG, without significantly more evidence and research into the effects of such large-scale solar installations on land in the UK.

[10] Solar parks: maximising environmental benefits - TIN101 (naturalengland.org.uk)

6 Health & Wellbeing

1.6.2 Human Health and Wellbeing

Section 21.5 of Chapter 21 of the ES Other Environmental Matters [APP-059] provides an impact assessment in relation to human health and wellbeing. Table 21.5.1 signposts supporting information on Human Health elsewhere in the ES.

b) To what extent do IPs consider that the relevant parts of the application have systematically addressed the health impacts of the development, and what further information would assist with understanding health impacts.

We do not believe that the applicant has addressed the health impacts this scheme will have on the residents in the West Burton solar project area. By just doing a desktop review is not satisfactory. We have always advocated that the applicant should carry out a detailed Health Impact Assessment using the advice and format set out by Public Health England (Health and Environmental Impact Assessment: A Briefing for Public Health Teams in England July 2017 PHE; Health Impact Assessment in spatial planning: A guide for local authority public health and planning teams October 2020 PHE). This requires an engagement with multiple stakeholders within Lincolnshire connected with health, who would provide an insight into the health issues in West Lindsey. They would have provided an insight into deprivation, issues around physical health and mental health, the protected characteristics and ways to mitigate against the scheme which will impact on health inequalities. Up to date health intelligence is essential. We have highlighted issues around mental health and how important green space is to those living in rural areas. In population health management, it is well recognised that the environment plays an important role in wellbeing, mental health and physical illness. It was the residents in their relevant representations and open forums who brought this to the attention of the applicant, who just seem to skirt over this issue. How can one mitigate for the loss of the countryside and way of life for rural people with the scale of such developments?

We have always advocated that the cumulate impact of all the schemes definitely requires a single Health Impact Assessment and that the Secretary of State would require this. The main focus of the Health Impact Assessment is to understand the health issues faced in the

area and the impact, to prevent health inequalities and more importantly these schemes do not affect the NHS Core20Plus5.

We have examples of Military Veterans who benefit from the open spaces as therapy. We also have examples of patients with Learning Difficulties with spatial issues who also benefit from the open countryside.

A traveller site at Odder (who were not informed as too far from the West Burton 1 & 2 sites), could be severely affected by flooding as their permanent site is on the River Till, downstream from the West Burton development. This ultimately could create a health inequality.

We have also highlighted our concerns around the Equality Impact Assessment (see 7000 Acres WR REP1A-14 on the applicants Equality Impact Assessment).

The applicant clearly does not demonstrate a clear understanding of rural health issues. They clearly did not separate out health impact issues as a separate subject and it was embedded in the Socioeconomic Chapter. We believe the health and wellbeing impact over the 40 now 60 years is a major issue and should have been escalated by the applicant in their Environmental Impact Assessment with far more rigour and scrutiny.

1.6.5 Human Health – Study Area

Are the relevant Local Authorities and IPs, satisfied that the study area for the Human Health and well-being effects is appropriate?

No.

The study area should be the total area covered by all the schemes proposed. The scale of the proposals that will affect a population of approximately 50,000 people, including Gainsborough town, which already has higher levels of economic inactivity, low social mobility and existing health inequality. This should have necessitated one Health Impact Assessment with a full engagement with the relevant stakeholders providing health to Lincolnshire.

1.6.6 Engagement with LCC Public Health, NHS Lincs and UKHSA

Can the Applicant please summarise engagement with LCC Public Health, NHS Lincs CCG and UKHSA to understand the Health and Wellbeing impacts this scheme will have on the surrounding areas including Gainsborough over the lifetime of the proposed development.

Lincolnshire Clinical Commissioning Group, with the new Health Care Act 2022, has been replaced by the Integrated Care Board (ICS) which brings the NHS together locally, and the Integrated Care Partnership (ICP) who prepare the integrated strategy which takes into account the Joint Strategic Needs Assessment and the strategy for health in Lincolnshire.

Other stakeholders:

- United Lincolnshire Hospital Trust (Hospital Trust) - ULHT
- Lincolnshire Community Health Services (Community Trust) - LCHS
- Lincolnshire Partnership Foundation Trust (Mental Health Trust) -LPFT
- Trent and IMP Primary Care Networks
- Other voluntary organisations e.g Age UK, Dementia UK, MIND

1.6.7 Health & Social Care Act 2022

Please can the Applicant

a) comment on the extent to which the Health and Social Care Act 2022 has been considered within its Health Assessment, and within the Equality Impact Assessment (EqIA) [APP-321].

b) Does it consider the Act relevant?

This Act ensures that all the NHS organisations come together as one integrated system and that the strategy for Lincolnshire Health and Wellbeing is prepared in an integrated way going forward using health intelligence to drive good health outcomes, and to prevent health inequalities in a more equitable way. Therefore, this Act is relevant as to the cumulative impact all the schemes will have on this area.

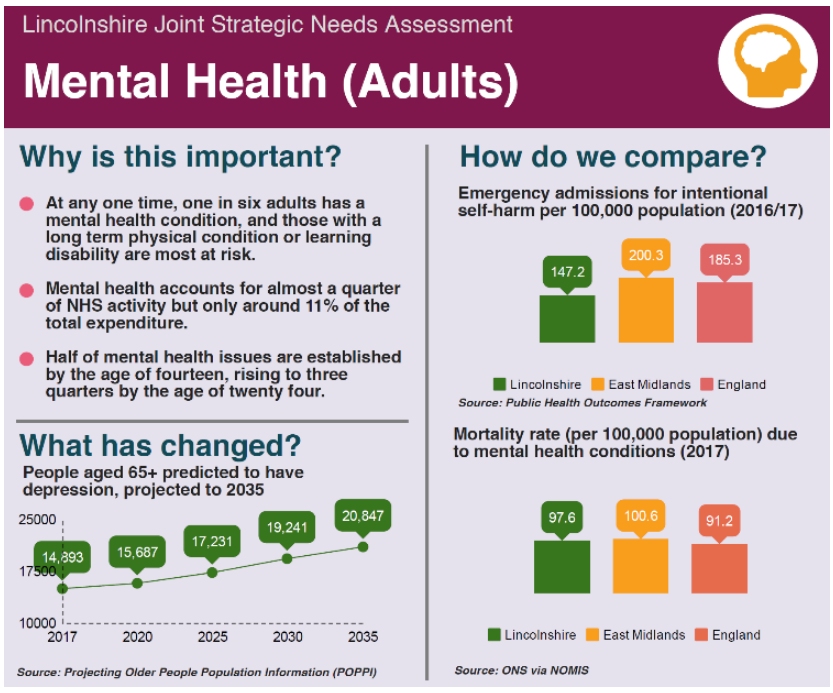
1.6.13 Wider Determinants of Mental Health: Environmental Conditions

Environmental conditions are part of the accumulation of factors which determine health and mental health. Living and working conditions, including agriculture and food production, working environments, employment/unemployment and social and community networks play an important role in determining good mental health in the countryside, and elsewhere.

7000 Acres highlight [REP1A-015 and REP1A-018] an increase in depression within local communities "particularly in rural farming where this has been well recognised…[the] impact of these schemes has the potential to worsen mental health because they take away the very fabric of what rural life is about".

7000 Acres also cite the Lincolnshire Joint Strategic Needs Assessment at page 6 of their WR [REP1A-018]. The ExA notes that there is predicted increase in depression in the 65+ and that depression rates in Lincolnshire are above average at 10%.

b) Optionally, IPs may wish to comment on specific aspects of the fabric of rural life which they consider will be taken away, resulting in worsened mental health, as a result of the proposed scheme (or in combination with other proposals). Please cite any relevant evidence where possible.



(from the Lincolnshire Joint Strategic Needs Assessment)

7000 Acres has always pointed out that changing our environment has the potential to further increase depression rates, as those who live in the countryside, many out of choice, do so to gain benefit to their mental health. We know that green spaces affect positive mental health outcomes. It is well recognised in population health management that the environment plays a significant role in people's health and health outcomes. Both farming and rurality are key factors leading to health inequalities, and given issues such as social isolation and loneliness which exist in farming and an ageing population, issues relevant to our area, this all leads to increasing mental health issues. We know that farmers are particularly at risk of suicide and mental health issues already, and by creating inequity through these schemes could potentiate further mental health inequality.

7000 Acres has always had a concern that these schemes will fragment and erode the social support networks that are in place because of outward migration of the younger generation leaving a much more vulnerable older population. Good social support is important as treatment for mental health. Eroding our agricultural sector, increases unemployment, which in itself leads to poor health and mental illness, which spirals into an increase in alcohol and drug abuse. If you have a long-term physical condition or a learning disability, one is at more risk of having a mental health condition. This is why a Health Impact Assessment is important. The Lincolnshire Joint Strategic Needs Assessment (JNSA), see above, has highlighted that there is a predicted increase in depression in the 65+ age range. This is a concern as the over 65 in our area is predicted to grow. People settle in rural areas for better quality of life. Therefore, changing our environment will have a negative impact particularly in the older age group, which will create inequalities particularly around mental health in this age group. This should have been highlighted within the Equality Impact statement under the heading "age".

1.6.14 Social Care and Baseline Data

The ExA notes that the baseline assessment set out in Chapter 21: Other Environmental Matters [APP-059] uses data from 2011 and 2021 (Section 21.5). The Applicant is asked to consider the applicability of the 2011 data, and to provide clarity as to the reasons for its use, rather than a more up-to-date data set.

There is a failure by the applicant to use well recognised data sets especially those that apply to Lincolnshire health. By doing a desktop review, crucial elements on health are missed out. Understanding rurality and the impacts that surroundings areas have on towns and villages is crucial when it comes to health. The ICP sets the strategy and these are readily available e.g the Joint Health and Wellbeing Strategy for Lincolnshire, the Director of Health Annual reports which contain data such as the Global Burden of Disease, and the new strategy "Better Lives Lincolnshire", which outlines the ICP strategy for 2023 replacing the JNSA. The ICS publishes data through the Lincolnshire Health Intelligence Hub[11] which incorporates the old Joint Strategic Needs Assessment. This again highlights the importance of a well-structured Health Impact Assessment involving the right stakeholders.

7000 Acres has highlighted our concerns around social care. Younger people tend to work in this area, however with outward migration concerns, escalated more by these developments make it less appealing for younger people to remain and settle here, and therefore pose a problem for the social care sector in West Lindsey, as well as for the established NHS Neighbourhood teams. Therefore, in a predominantly older population there is more reliance on the unpaid carers. Unpaid carers are seven times more likely to report loneliness and therefore face a higher risk of deteriorating physical and mental health conditions due to isolation.

Lincolnshire is already facing a workforce crisis both in retention and recruitment in the health and the social care sector.

1.6.15 Socio-economic Change: impact on health and wellbeing

Please see answer to 1.13.9.

[11] Home - Lincolnshire Health Intelligence Hub (lhih.org.uk)

8 Landscape and Visual

1.8.1 Design Principles

Please also refer to 7000Acres Deadline 3 Submission, "Reply to West Burton ExA First Questions: Supplementary material covering detail of evolving NPS landscape".

1.8.5 Solar PV Panels.

Noting that the size of PV panels is not fixed in the application, the Applicant is asked to please indicate how the implications of each of the different options available have been fully considered in terms of landscape and visual effects.

7000Acres argues that it is not possible to fully consider the implications of not fixing the size of panels in terms of landscape and visual effects. It means that the Applicant is basing their assertions on meaningless scenarios and providing information which is baseless and will have no reflection on the implementation of the scheme if it goes ahead.

1.8.6 Battery Energy Storage System (BESS)

The Concept Design Parameters document [REP1-036] provides the parameters for each battery storage unit but it is unclear whether these will be stacked and if so, what the maximum height would be. Can the Applicant please explain where the maximum height of the Battery Energy Storage System is secured in the application documents?

7000Acres accepts that applying a Rochdale Envelope to a project of this type is reasonable. However, Advice Notice Nine reminds us that detail is required in order to assess the worst case:

"2.3 To understand the implications arising from the comprehensive consideration of the issues by the Judge (Sullivan J. (as he then was)) in Milne (No. 2) ('the Judgment'), it is helpful to note some of the key propositions, as follows:

- *the assessment should be based on cautious 'worst case' approach:*
  "such an approach will then feed through into the mitigation measures envisaged […] It is important that these should be adequate to deal with the

worst case, in order to optimise the effects of the development on the environment" (para 122 of the Judgement);

- *the level of information required should be:*
  "sufficient information to enable 'the main,' or the 'likely significant' effects on the environment to be assessed […] and the mitigation measures to be described" (para 104 of the Judgment);
- *the need for 'flexibility' should not be abused:*
  "This does not give developers an excuse to provide inadequate descriptions of their projects. It will be for the authority responsible for issuing the development consent to decide whether it is satisfied, given the nature of the project in question, that it has 'full knowledge' of its likely significant effects on the environment. If it considers that an unnecessary degree of flexibility, and hence uncertainty as to the likely significant environmental effects, has been incorporated into the description of the development, then it can require more detail, or refuse consent" (para 95 of the Judgment);"

As a general comment, the Applicant has consistently failed to apply a reasonable worse case assessment and frequently relied on wishful thinking, such as improvements in future technology without supporting evidence, to mitigate harm.

1.8.11 Lighting

Draft NPS EN-3 sets out that lighting should be designed and installed to minimise impacts. Can the Applicant identify whether and how design parameters have sought to address. Whilst lighting is referred to in the CDPP [REP1-036], there is limited information relating to how this would be controlled, including whether lighting would be activated manually or by movement. The Applicant is asked to please provide further detail on this point.

The rural area affords dark skies which benefits flora and fauna. Plants and animals depend on rhythm of light and dark to govern life-sustaining behaviours such as reproduction, food, sleep and protection from predators. Artificial light has negative effects on many creatures, including amphibians, birds, mammals, invertebrates and plants which in turn impacts on habitats. The introduction of the type of lighting specified by the Applicant is harmful to the

setting and nature within it. Stringent control measures need to be in place and implemented and monitored for the lifespan of the Scheme.

1.8.14 Landscape and Ecology Management Plan

Appendix B to the OLEMP [REP1-042] refers to the operational management 'prescriptions'. These elements include work to keep hedgerows, hedgerow trees and woodland copse and shelter belts weed free for 3 years. It also refers to the replacement of dead plants in relation to hedgerows, hedgerow trees and woodland copse and shelter belts weed free ending after 5 years. The Applicant and local authorities are asked to please comment on the adequacy of these provisions.

Failure to keep the scheme weed free beyond the short time period stated has the potential to have a major impact on the local ecology, rural economy, wildlife and farming. Furthermore, establishment of planting is detrimentally effected by invasive weeds. The Applicant does not appear to have made a reasonable worse case assessment of the scheme being affected by invasive weeds, and the consequent impact on the local ecology, rural economy, landscape and visual amenity.

1.8.18 Glint and Glare Assessment

The ES Chapter 16 [APP-054] sets out at paragraph 16.7.3 the view that panel's frame and structure can also be a source of glare it is unlikely that will be visible. Furthermore, their total potentially reflective surface is much smaller when compared to the total panel area their area. Therefore, no assessment is required. The Applicant is asked to please provide further justification of this position, noting the reference to the fact that the potential for solar PV panels, frames and supports to have a combined reflective quality may need to be assessed in dNPS EN-3 at paragraph 2.10.106.

7000Acres considers the Applicant's Glint and Glare Assessment should be updated to include the requirements in EN-3 3.10.95:

"3.10.95 When a quantitative glint and glare assessment is necessary, applicants are expected to consider the geometric possibility of glint and glare affecting nearby receptors

and provide an assessment of potential impact and impairment based on the angle and duration of incidence and the ***intensity*** *of the reflection."*

The Applicant has conducted a simplistic assessment that has not taken account of the intensity of the reflection.

Additionally, the Applicant should update their assessment to comply with EN-3 3.10.149:

"3.10.149 Solar PV panels are designed to absorb, not reflect, irradiation. However, the Secretary of State should assess the potential impact of glint and glare on nearby homes, motorists, public rights of way, and aviation infrastructure (including aircraft departure and arrival flight paths)."

The Applicant has failed to consider the impact of glare on motorists: "*Technical modelling is not recommended for local roads, where traffic densities are likely to be relatively low. Any solar reflections from the proposed development that are experienced by a road user along a local road would be considered low impact in the worst case in accordance with the guidance presented in Appendix D."*

The Applicant dismissed the impact on PROW as receptors "*could move beyond the solar reflection zone with ease with little impact upon safety or amenity;".*

9 Need, the electricity generated and climate change

1.9.1 Recent Government publications and consultations

Can the Applicant and IPs comment on the implications for their cases of the most recent Government publications including:

- The Department for Energy Security and Net Zero Policy Paper 'Powering Up Britain', and the complementary papers 'Powering UP Britain: Energy Security Plan' and 'Powering UP Britain: Net Zero Growth Plan'; and
- The Skidmore Review, Review of Net Zero, published in January 2023.

Please specify what weight should be given to these documents.

The 7000Acres WR1A-026 describes, in Sections 1.2 and 1.3, the key points relating to the NPS landscape and Government strategy announcements that are most relevant to solar development, in particular:

1. Solar is not part of the of the UK Government's Ten Point decarbonisation plan.
2. The policy framework regarding solar has been a shifting landscape in recent years and continues to evolve.
3. While the ambition for solar development has grown to 70GW of capacity, there is no explicit target for large-scale ground-mounted solar development in the UK.
4. Significant challenges to large-scale ground-mounted solar development are acknowledged, including efficiency of land use, community impacts and environmental impacts. (None of these downsides arise for rooftop solar installations.)
5. Land use is increasingly recognised as being a key challenge and is subject to current Government work to develop a Land Use Framework.
6. The current NPS framework does not include solar.
7. The draft NPS framework (2023) does not foresee ground mounted solar of the scale proposed by CSP.

8. The NPS advocates "good design", including the importance of the functionality of the development. This WR will describe the constraints around the functional contribution solar can make to energy and decarbonisation, which are limited to the point where the benefits do not outweigh the harms arising from ground mounted solar installation at such a large scale.

What is equally important to consider, in addition to the Government publications within the question, is the publication of three major reports this year that assess the decarbonization of the power sector in the UK and current progress towards delivering on that goal. In doing so, they describe the main challenges and the extent to which solar plays a role. These reports are:

- Delivering a reliable decarbonised power system, by the UK Climate Change Committee (CCC), March 2023
- Decarbonising the power sector, by the National Audit Office (NAO), March 2023
- Decarbonisation of the power sector, by the Business, Energy and Industrial Strategy Committee (BEIS), April 2023 – **Note:** *the energy portfolio of this department is now the responsibility of the Department for Energy and Net Zero (DESNZ)*

More detailed commentary of these reports are included in 7000Acres WR1A-026, section 8, however, their most pressing findings are:

- The need for overall co-ordination and planning of the energy system.
- The resolution of grid connectivity issues – especially to deliver offshore wind generation.
- Inadequate pace of deployment of wind and nuclear power generation.
- The need to manage energy flexibility and intermittency of renewable energy sources.

While solar has its part to play, it features very little in the landscape of key challenges identified by these reports, that must be overcome for the UK to make a success of decarbonising the power sector. Furthermore, existing rates of deployment quoted by the Climate Change Committee do not appear to be a concern, thereby undermining the call by Applicants for extensive acceleration of solar deployment through large-scale ground mounted solar.

1.9.2 Climate Change Assessment

Paragraph 7.8.28 of ES Chapter 7: Climate Change [APP-045] states that it is assumed the half of the construction materials would come from China and half would come from Europe. However, paragraph 7.5.4 states that the PV panels are expected to be sourced from China (or a country of similar distance to the UK). a) Can the Applicant please comment on what basis the above 50:50 China: Europe split assumption is made? b) Would PV Panels account for more than 50% of construction materials?

China is now the major supplies for utility scale batteries, such as those used in the BESS. So, in addition to the solar panels, batteries are likely to be sourced from China. Unless the Applicant can provide evidence for an alternative source of materials, then applying a reasonable worse cases assessment (Advice Notice Nine) is that the both the solar panels and batteries will be sourced from China.

1.9.3 Embodied Carbon

The ES Chapter 7: Climate Change [APP-045] states that manufacture and transport of products will likely be the largest sources of greenhouse gas (GHG) emissions from the Scheme (paragraph 7.5.4). Later, there is a reference to the manufacture and supply of PV panels and Batteries will be the largest source of GHG emissions during construction phase (paragraph 7.8.41). It is suggested that overall, the scheme would provide major beneficial impacts and a net reduction in GHG (paragraph 7.12.2) The Applicant is asked to please set out: a) whether and how amount of embodied carbon in all phases of the Proposed Development, including decommissioning and returning the land to agricultural use, has been considered. b) what weight is given to embodied carbon at the various stages of the scheme?

The Applicant's Chapter 7 Revision A (29 November 2023) is based on a lifetime of 40 years (section 7.8.74). Yet the Applicant now seeks a lifespan of 60 years and has submitted their Review of Likely Significant Effects at 60 Years (29 November 2029). Both documents were submitted at the same time but contain conflicting statements. The Applicant claims, without submitting evidence, that the life of solar panels will have an operational life of 60 years. They have not updated their GHG assessment to take account of replacing panels. The Applicant's Chapter 7 assumes a battery life of 20 years. The Review of Likely Significant

Effects claims in section 7.8.51 states that a further replacement of batteries is not considered. Either the GHG emissions for the 50% increase in lifespan are being ignored, or the life of the batteries are now claimed to be circa 30 years. In reality, current BESS batteries have a life of circa 10 years- reference https://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=8378432 .

The Applicant has failed to follow Advice Notice Nine section 1.4 that requires consistency across the Applicant's documentation.

1.9.4 Statement of Need

Please also refer to 7000Acres Deadline 3 Submission, "Reply to West Burton ExA First Questions: Supplementary material covering detail of evolving NPS landscape".

Powering Up Britain (2023), states the ambition for 70GW of solar by 2035, with the first reference to large-scale solar development "looking for development mainly on brownfield, industrial and low/medium grade agricultural land", in addition to "widespread deployment of rooftop solar in commercial, industrial and domestic properties across the UK".

A useful reference for the UK is Germany, which already has over 70GW of installed solar capacity, i.e. more than the UK Government's 2035 ambition. Despite having almost 50% greater land area than the UK, German solar capacity has largely been deployed on rooftops. By 2017, Germany had 43GW of solar installed, with 66% of this having been deployed using installations of 0.5MW or less[12], i.e. typically through domestic and commercial rooftops, and therefore not large-scale ground-mounted solar. More recent data from BSW Solar[13] (the German Solar Industry Association) highlighted that Germany installed a record 14GW of solar in 2023. This represents almost the entire solar capacity of the UK installed in one year alone. Almost 70% of this capacity was deployed on rooftops, which shows that Germany has continued to use its land resources prudently. That around 7GW was installed as rooftop solar on homes is a clear example of what can be achieved.

[12] EXISTING AND FUTURE PV PROSUMER CONCEPTS (pvp4grid.eu)
[13] 2023 mehr als eine Million neue Solaranlagen | Bundesverband Solarwirtschaft

Within the context of German solar capacity, large-scale ground-mounted solar schemes represent relatively small proportion of the solar capacity mix, at around 10%[14]. It is also notable, that the largest of such schemes is 187MW, at Weesow-Willmersdorf, near Berlin, which is less than 40% of the proposed scale of West Burton and despite Germany typically having a far higher solar gain than the UK. For instance, despite being in northern Germany, the Weesow-Willmersdorf scheme would have around 11% higher output per-panel than the West Burton scheme.

Germany therefore represents a compelling case-study for solar deployment without extensive deployment of large-scale ground-mounted solar, having already deployed over 70GW of solar without a single scheme anywhere near the scale proposed by the Applicant.

The "need" case for large-scale ground-mounted solar in the UK is primarily a function of economic frameworks and opportunity. The combined effects of cheap solar, high energy prices and uncertain economics of farming have created a rush for such ground-mounted schemes, which would render any need for extensive rooftop deployment of solar in the UK redundant.

The Statement of Need tells only part of the story and therefore represents a partial description of need to justify the Applicant's case; it cannot be relied upon as evidence as the basis of the examination.

1.9.5 Details of the BESS

The ES Chapter 4 [APP-042] paragraph 4.5.27 sets out that in terms of battery storage, the precise number of individual battery storage containers will depend upon the level of power capacity and duration of energy storage that the Scheme will require. As far as is possible at this stage, the Applicant is asked to please provide further details of: a) The total power of the BESS (rated in megawatts); b) The storage capacity and duration of storage (rated in megawatt hours); c) How the PV cells will be connected to the BESS; and, d) The energy balancing role of the BESS.

[14] Global Market Outlook for Solar Power (solarpowereurope.org)

The Applicant should provide a reasonable worse case assessment of the scheme, including sufficient information, as required by Advice Notice Nine section 2.3.

1.9.6 Co-Location of BESS and Grid Connection

The BESS alone has a need for a high-voltage, high-power grid connection, as its primary function is to store power, either from the grid itself, or from the solar development and then export this back to the grid. Section 5 of 7000Acres WR describes the role of BESS, and that in the winter, the solar scheme would be unlikely to be able to provide sufficient power to charge the BESS, therefore a significant proportion of the time, the BESS would be charged directly from the grid, e.g. at periods of high wind.

Although small, transmission losses are lower, the closer the BESS is located to the grid. In addition, as the site of former coal-fired power stations, with significant water abstraction capacity, the grid connection points provide a credible source of high volumes of water to manage BESS thermal runaway. In short, there are distinct advantages to co-location of BESS at the grid connection site.

1.9.7 Large-scale Ground Mounted Solar Farms

Please also refer to 7000Acres Deadline 3 Submission, "Reply to West Burton ExA First Questions: Supplementary material covering detail of evolving NPS landscape".

Probably the first observation with regard to the revised draft NPS-EN1 2023, versus the 2021 version is that the landscape is constantly evolving as we understand more about the urgency of climate change, what continues not to be done, and how we best decarbonize the electricity sector.

Clearly, there is the relatively recent Government ambition for 70GW of solar (first published in 2022), but there is also the economic circumstance of high energy prices and low solar prices, coupled with the troubled economics of farming which makes the proposition of large-scale ground-mounted solar financially lucrative.

With investors keen to see bankable green investment opportunities, developers are keen to reinforce the message of "urgency" around deployment of large-scale ground mounted solar, in pursuit of their objectives to deliver such projects, regardless of whether their schemes are genuinely effective in terms of sustainability and decarbonization.

For instance, Pinsent Masons act across all the live NSIP solar projects in West Lindsey, amongst many others, some of the partners involved in these schemes are also involved in lobbying the Government to influence the draft National Policy Statements, which goes some way to explain the incremental shift in the development of the draft NPS, i.e. there is clearly developer interest involved in the evolution of the draft NPS.

While we may therefore congratulate the Applicant and their representatives on their work in influencing this latest draft, such lobbying does not occur in a vacuum. Around the same time as the draft NPS suite was being published, further reviews of the UK's progress towards decarbonization were published, notably the Skidmore Review (above) and reports from the UK Climate Change Committee, the National Audit Office and the Business, Energy and Industrial Strategy (BEIS) Committee, see answer to Q1.9.1 (above).

The messages from all four reports are consistent, calling for greater coordination and planning of energy infrastructure, with priorities being for deployment of offshore wind and associated grid infrastructure, as well as technologies to manage energy flexibility that arise from intermittent renewable energy, specifically storage and clean dispatchable power generation. Across the four reports, the only clear action regarding solar is for a "rooftop solar revolution". In addition, there is an increasing level of understanding as to the important role that land use will play in decarbonization, and a growing call for efficient land use within a coordinated land-use framework.

The Examining Authority may note that there has been the opportunity for comment on the draft NPS, and that the position taken by the developers in the hearings is that they are supportive of rooftop solar, in principle presumably, as long as they don't actually have to deliver any. What is clear is that, with 130GW of proposed ground-mounted solar schemes with connections in the National Grid TEC register, even if less than half of this is delivered, it will make redundant the need for rooftop solar development.

It is therefore increasingly understandable that the developer calls for "urgency", to secure approvals of consents for their schemes before the policy and planning framework catches up and creates the much called-for coordination of energy projects and efficient land use protocols which would put their schemes under much greater scrutiny.

The draft NPS therefore simply captures a moment in time. For instance, it highlights the success of Contracts for Difference in delivering Offshore Wind, having been published before the outturn of the year's CfD round, in which the clearing price was too low to support any new offshore wind projects.

With regard to the specific question around section 3.3.58, this must be read in conjunction with section 3.3.57, which lists a range of 12 technologies which are included in the scope of the NPS and which includes solar. While section 3.3.58 states that "the need for all these types of infrastructure… is urgent", in section 3.3.59, the dNPS states there is a "critical national priority (CNP) for the provision of… offshore wind infrastructure… and network infrastructure". This is the only technology to be highlighted in this way.

This clearly reinforces a key finding of all four reviews referred to earlier, i.e. the need to accelerate offshore wind and supporting network infrastructure.

Within the dNPS there is no differentiation between the other 11 technology types, despite their very different levels of potential contribution to energy, to decarbonization or their level of technology maturity. For instance, Hydrogen and CCS (Carbon Capture and Storage) are central to the Government's approach to delivering energy flexibility. Both technologies are in their infancy but are absolutely critical to the success of decarbonization. Wave and tidal technologies have always shown promise, but are not foreseen to make a significant contribution to the energy system, only between 1-4% by 2050, according to National Grid (FES 2023). For context, solar is expected to deliver between 7-10% of UK power by 2050, and wind is expected to deliver around 70%. In other words, while the blanket call is for "urgency", some technologies are clearly more valuable – and therefore urgent than others in the pursuit of decarbonization objectives.

In terms of the overall policy case therefore, the inclusion of solar in the dNPS must be considered in the context of an evolving landscape of understanding, the outcomes of effective lobbying of developers with a strong financial incentive, as well as principles that

have remained consistently throughout the evolution of NPS (including the dNPS) and strategy documents, in particular principles of "good design", which include efficient use of natural resources – including land use, development that is sensitive to place and the mitigation of adverse impacts.

Overall, therefore, the case for ground mounted solar at the scale proposed by the Applicant remains flawed, as although the dNPS does include solar, which implies an installed capacity of over 50MW, dNPS EN-3 provides an example of a "typical" solar scheme being 50MW, not an order of magnitude larger. Furthermore, the growing concerns over effective land use weigh heavily against such schemes, particularly as uncontrolled development would serve to undermine the efficient deployment of solar on rooftops, which would far better meet the consistent principles of good design.

1.9.9 Productivity / Efficiency of Solar PV Panels

7000Acres would draw a clear distinction between efficiency and productivity of solar panels.

- **Efficiency** (technical efficiency) this is the proportion of electrical energy produced, for a light energy provided, and is a function of the technology itself. That solar is a technology that can make a contribution is not in question. Clearly, any technology is expected to improve over time, and it is understood that, in order to deploy solar at scale, we have the technology we have now.
- With regard to **productivity**, we have a clear choice of where we deploy solar, and it is clear that the effective yield of solar panels in the UK is demonstrably low. This is explained in more detail in Section 2.3.3 of 7000Acres WR1A-026, and further in Section 7.1 commenting on the treatment of the subject in the Applicant's Statement of Need. It is clear that this limited yield must be taken into account when deploying ground-mounted solar at scale, given its consequential impacts.

Regarding fixed versus tracking panels, 7000Acres have assessed that the yield of a fixed panel within the region would deliver around 10.8% of rated capacity, using source data from Global Solar Atlas[15].

Within the ES the Applicant has stated that the tracker panels could increase the output of the scheme by between 10% - 30%. Taking 20% as a mid-point between the 10% to 30% range, 7000Acres would expect the yield to increase to 12.9%.

As you would imagine, this is significantly lower than the yield from countries more suited to solar power. It is perhaps to be expected that the largest solar plant in Europe is in southern Spain.

	kWh/m2	**MWh/yr**	**Load Factor**
UK Average (fixed)			10.5%
Cottam (fixed)	1168	945	10.8%
Cottam (tracker)		1134*	12.9%
Extremadura/Spain (fixed)		1653	18.9%
Extremadura/Spain (tracker)		1983*	22.6%

Base data from Global Solar Atlas

**Calculated from (fixed) data + 20% (mid point of 10-30%)*

More starkly, any UK installation will have a significantly lower output in comparison to (for instance) the Núñez de Balboa plant in Extremadura, Spain, which produces 82% more power than an equivalent capacity scheme in the UK. (Notably, this is in a country with over double the land area to the UK, with a lower population and much less pressure on land use).

While the deployment of Tracking panels at West Burton raises the yield, it does not approach that of Spain, and effectively secures the same solar gain as locating the panels on the Isle of Wight, but only at the cost of significantly increasing the height of the installation and its impacts.

The Applicant is unclear as to whether tracking panels will be deployed at the West Burton scheme, and seeks to reserve the option for their use. The Applicant's ES describes the

[15] Global Solar Atlas

difference between fixed panels at a maximum of 3.5m height and tracker panels having a height of 4.5m. This is clearly a material difference to the visual impact of the scheme and the capacity of natural screening to be effectively deployed.

The Applicant asserted that the scheme would have a higher load factor than other schemes brought forward to date, but this would clearly only be the case should tracker panels be deployed, which would have a significantly adverse impact on landscape and visual aspect.

Overall, therefore, the site for the West Burton project has a demonstrably low solar yield, and this fact must be given significant weight when considering the potential benefits it may deliver, and therefore the potential harms the scheme may be able to overcome. Attempts to increase the yield through use of tracking panels will also increase panel height, and also, therefore the potential adverse impacts arising from the installation.

1.9.10 Replacement of PV Panels

Paragraph 7.8.52 of Chapter 7: Climate Change [APP-045] assumes that 0.04% of panels will need replacing every year based on supplier input. Please can the Applicant confirm supplier input on expected life of each PV Panel, including effective life and at what point a panel may become uneconomical. Please also respond to the following queries: a) Is the 0.04% p.a. replacement rate a reasonable worst-case scenario? b) Is it based on a 40-year lifespan? If so, what may be a replacement rate over 60 years? c) Should the GHG emissions be based on a higher replacement rate?

It is understood that the figure of 0.04% is a typo carried over from the IGP Cottam Application; the Applicant's new claim is a failure rate of 0.4% per annum. From an engineering viewpoint, applying a linear failure rate is not valid. Equipment exposed to the elements will suffer an increasing failure rate with time. Applying the Applicant's claim of 0.4 per annum implies that 60% of the panels will last 100 years! The Applicant should base their GHG assessment on a reasonable worse case assessment, using current technology.

13 Socio Economic Matters

1.13.6 Community Benefits

Various RRs stated that there has been no consultation from solar companies with parishes regarding the setting up of a community fund which would run for the entirety of the project to award sums for compensation for detrimental loss. The implication is that this would go some way to offering community benefit.

IPs are invited to explain further what is meant by compensation, what a fund would be used for, and how such funds may be secured.

Within consultation events, Community Benefits were a prominent element of the consultation material[16] (see below, being one full board out of 14). The Applicant invited comments on a range of potential community benefits, including a community fund, recreational access improvements and free-to-use community infrastructure.

[16] Island+Green+consultation+boards (squarespace.com)

Within the consultation, the Applicant has committed to a Community Benefit Fund, but it is not clear whether any Parish Councils or Parish Meetings have been approached to discuss details of any such scheme.

Despite the prominence of Community Benefit material in consultation, little has been heard about the Applicant's intentions around providing community benefits. Indeed, as the community better understands the potential impacts of the West Burton scheme, particularly in conjunction with other large-scale solar projects in the region, it has become abundantly clear that the development cannot offer benefits to the community that would be sufficiently meaningful to foster support for the schemes, and certainly nothing to outweigh the harms associated with such a radical change to the character of the area. What little that was mentioned initially by the Applicant has been seen by members of the community as little more than a "bribe", or disingenuous distraction, particularly given the lack of any details since the original consultation.

It is genuinely difficult to identify potential benefits for the community that can go any way towards compensating communities, if the views around villages, the local footpaths, cycle routes and landscapes become dominated by solar panels, with potential impacts on mental health and wellbeing, attractiveness of villages and therefore sustainability of communities, as well as house prices.

The Applicant's consultation feedback demonstrated overwhelming opposition to the proposed scheme, with 79% "strongly opposed", when faced with the (loaded) question "How supportive are you of our emerging solar project proposals, which would generate clean, affordable, and reliable renewable energy for the national grid, with energy storage for when it is needed most?".

The Skidmore review states "where located near communities, the utilisation of a consent process — that could be delivered through Local Area Energy Planning, a 'Net Zero Neighbourhood Plan' or equivalent — should aim to ensure that these projects are not imposed on local communities".

Should the scheme be developed, therefore, it would be imposed on the local community, as there is overwhelming local opposition, no community benefits, only community harms.

1.13.9 Socio Economic Analysis of Gainsborough

Interested Parties have queried the geographical range considered within the Socio-Economic analysis of Chapter 18 [APP-056]. The ExA notes concern that the "baseline conditions has been chosen very widely across Bassetlaw and West Lindsey", and the assertion that the areas avoid "the specific socio-economic difficulties of Gainsborough". [REP1A-024]

b) 7000 Acres, or other IPs, may wish to highlight specific alternative data sets on which to base the analysis. Please also explain, by reference to the specific socio-economic difficulties of Gainsborough, how these relate to the proposed development.

Gainsborough town and its surroundings are inextricably linked. Towns like Gainsborough should be an engine for the local economy. By adversely impacting the rural economy, this will have an impact on Gainsborough by worsening deprivation and may affect the levelling up programme for the town. In rural areas, young people tend to move out, mainly because of a lack of employment opportunities or underemployment. These schemes have the potential to make our area unattractive to settle in, and therefore this has a snowball effect on the economy of Gainsborough, which already has low levels of educational attainment, low employment, and low socioeconomic status (see 7000 Acres WR REP1A-015 Health and Wellbeing reference deprivation in Gainsborough). In essence, Gainsborough should be a social hub with a vision that should solve both the town and the rural surroundings needs e.g tourism. This will be seriously affected if these developments go ahead. The knock-on effect of this could be socioeconomic decline, which has major impact on health and wellbeing in these communities.

Gainsborough and its surrounding areas lie within the Trent Primary Care Network: https://lpcna.nhs.uk/primary-care-networks/trent-care-network

On this link is the Public Health Intelligence profile 2020 which highlights the issues around Gainsborough and its surroundings (reference in 7000 Acre WR REP1A-015 on Health and Wellbeing).

Some of the area lies in IMP Primary Care Network: https://lpcna.nhs.uk/primary-care-networks/imp

Their annual reports highlight the health issues with data.

Had a thorough Health Impact Assessment been carried out with the relevant stakeholders, reports such as the one done on Gainsborough town and its surroundings in 2017 by the then West Lincolnshire Clinical Commissioning Group, would have highlighted the issues to the applicant. This revealed significant socioeconomic and health inequalities. Also, Index of multiple deprivation (IMD), does not reflect the cost of living and wellbeing issues in rural areas. There is no measure for lack of available services such as shops and amenities, access to transport as well as digital communication. It does not reflect under-employment or unemployment, fuel and food issues. 7000 Acres' concern is that within our rural areas are pockets of deprivation that have not adequately been identified within the applicant's assessment on Health and Wellbeing.

Rather than imposing huge solar projects which have no gain to either the town or surroundings areas, other than the land owners, the investors and those that benefit from the energy supply further away, it has been suggested in a report "Reimagining the rural: What is missing in UK policy?"[17] Newcastle University Centre for Rural economy, that towns like Gainsborough should be working with its rural community to help protect its environment, the food production and perhaps investing in smaller schemes such as community renewal projects. This means smaller, less imposing schemes, providing local electricity and heat solutions (either wind/solar), will be more appealing to the local communities.

Fuel poverty is a real issue in rural areas as there is more reliance on oil because rural areas tend to be off the gas grid. Also, rural housing stock tends to be much older, therefore poor quality, less energy efficient, and this adds to the complexity. Rural areas have a lot of

[17] reimagining-rural.pdf (ncl.ac.uk)

pensioners, and therefore with fuel poverty where homes are not heated properly leads to a deterioration in health. Therefore, community renewal projects would be far more beneficial to solve this rural problem.

7000Acres see the example of the Applicant's chapter on Socio Economics as a clear example of the reason why the Applicant's material cannot be used as the sole basis of evidence for a subject when determining the examination. To carry out a of socio-economic review of the area around the WBSP and not acknowledge or address the deprivation issues of Gainsborough is either misleading, partial, or superficial, and should further serve to render the assessment inadequate.

The chapter generally concludes that impacts across the Local Impact Area for population health & wellbeing, disability & long-term health conditions, economic activity and employment are adverse. The assessment then fails to consider that these negative impacts will be most severely felt in the concentrated area around the WBSP and other NSIP-scale developments.

The nearest large community to the West Burton scheme is Gainsborough, clearly evidenced as having severe socio-economic difficulties. For a major development, or series of major developments to risk making the area even less attractive, with adverse impacts on economic activity, employment and health, is akin to simply kicking a town while it's already on its knees.

15 Water Environment including Flooding

1.15.3 Water Quality of On-Site Ditches

A further question of the Applicant is:

What mitigation and containment measures would be provided to prevent contaminated water entering on-site ditches during a BESS chemical fire requiring up to 114 cubic metres of cooling water per hour, for at least 2 hours or as long as it takes to control the fire Ref ES Appendix 10.5 Firewater Risks para 3.10.1?

1.15.4 Isolation and Operationality in Flooding Event

What containment and mitigation would be provided to contain transformer insulating oil in the event of an extreme flooding event?

What safely measures would be in place to prevent injury to operational staff isolating electrical equipment in floodwater?

1.15.5 Survey of the River Till

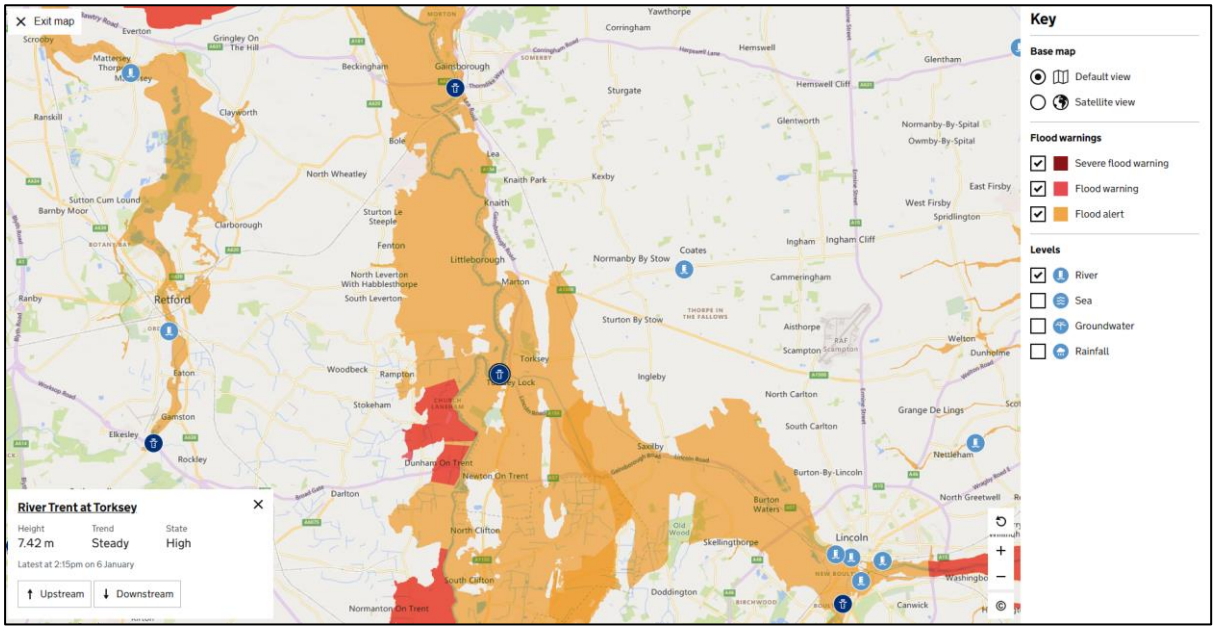
What assessment has been carried out of the potential increase in colloidal and suspended clay particulates in the Till and its tributaries resulting from soil erosion/mobilisation due to increased surface water runoff from solar panels and its effect on aquatic invertebrates?

What benthic and sessile studies have been carried out by the applicant to determine the existing ecology of the River Till and its tributaries?

1.15.9 Flooding in 2019/2023

7000Acres note also the flooding event in January 2024, arising from Storm Henk, in which levels of the river Trent at Torksey were recorded at their highest levels[18], resulting in flooding of the caravan park. This is in the immediate area around the West Burton 3 site.

The image below, from the UK Government's "Check for Flooding" service, shows the extent of flood warnings and severe flood warnings in the area of the West Burton Solar Project, following Storm Henk. 7000Acres' concern is that a significant area of solar panels from West Burton Solar Project, compounded with those of other schemes will concentrate and accelerate run-off and exacerbate an area that is already becoming increasingly susceptible to flooding.



Along with the other three major solar projects currently under consideration, what contribution would West Burton 2 make to the River Till and West Burton 3 make to the River Trent, from the increased risk of flooding from surface water runoff from solar panels under storm conditions?

[18] Lincolnshire flooding leaves caravan owners in tears - manager - BBC News

What effect would soil erosion arising from surface water run-off from solar panels have on the quantity of silt deposited in the River Till, its tributaries, and the exacerbation of flooding of adjacent areas?

1.15.10 Effect of PV Panels on Channelling of Storm Water

How does the applicant intend to mitigate soil erosion occurring under the drip line of the panels under storm conditions?

1.15.12 Emergency Services

What road improvements are being proposed to overcome the frequent problems with emergency access arising from increasing frequency of flooding and the impact of all 4 solar projects including West Burton?

What enquiries have been made to ensure there are adequate town main supplies to the BESS installations to provide a minimum supply of 114 cubic metres/hour as required by emergency services in ES Appendix 10.5 Firewater Risks para 3.10.1?

1.15.16 Table 10.7 Mitigation

What mitigation is being proposed to prevent contamination from substation transformers, inverters and battery storage units entering the surrounding linear infiltration trenches?