

Gate Burton Energy Park EN010131

Applicant Responses to Written Representations
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1. Introduction

1.1 Overview

- 1.1.1 This report responds to the Written Representations and other submissions submitted by Deadline 2 (8 August 2023) and at Deadline 1 (18 July 2023). It responds to the key topics raised in each Written Representation (WR). A total of 56 WRs were submitted to the Examination at Deadlines 1 and 2. A number of other submissions which comment on the Application have also been included.
- 1.1.2 Table 2-1 summarises the comments made in the WRs and other submissions and the Applicant's response to them. Due to their size, the representations made by 7000 Acres and Roy Clegg are dealt with in separate appendices.
- 1.1.3 Appendix A summarises the specific comments made by 7000 Acres and the Applicant's response to them. Any general points raised by 7000 Acres in its executive summary have been dealt with in Table 2-1.
- 1.1.4 Appendix B summarises the comments made by Roy Clegg in REP-89 at Deadline 1 and provides the Applicants responses to them.

Table 2 - 1: Applicant Responses to Written Representations

WR	Summary	Applicant response
<p>2.1. Principles of Solar Development and the Amount of Electricity Generated</p>		
<p>REP2-123 REP2-122 REP2-104 REP2-098</p>	<p><i>Concerns regarding the efficiency/yield of solar power against the space taken by the Scheme e.g:</i></p> <p><i>“In the UK, the average yield from solar generation is around 10% of its rated capacity according to the Digest of UK Energy Statistics (DUKES). The average output is therefore 50MW and would generate around 438,000MWh per annum. The annual UK electricity demand is 300,000,000MWh. (300TWh) Simple mathematics show that [the Scheme] offers less than a 0.15% contribution to our national needs and arguably delivered at the wrong time of day and indeed year. The loss of 2,500 acres of productive farmland and the harm caused by the industrialisation of our countryside for less than a 0.15% contribution to our electricity needs means that this is more likely to hamper our Net Zero ambitions than assist.”</i></p> <p><i>“Because of the relatively small amounts of electricity produced by solar and thus the long carbon payback period together with apparatus being replaced on a 15 year cycle, means that the carbon trapped from continued agriculture and therefore CO2 emissions would not rise due to extra food imports, far outweighs this schemes compounded carbon footprint.”</i></p>	<p>Solar Panel Efficiency: Installed Capacity and Electricity Generated</p> <p>In terms of efficiency of output, some representations have suggested that solar panels are ‘inefficient’ because the amount of electricity generated is a low percentage of a panel’s installed capacity and that this is leading to the developer over-estimating the benefits of the Scheme.</p> <p>The installed capacity of a solar park indicates its nominal power output under Standard Test Conditions. Installed capacity does not describe how much electricity is produced at a particular solar park in a specified period because the key drivers of output at any time, are prevailing weather conditions and the time of day / seasonality. Therefore, the Applicant discusses the benefits of the Scheme in relation to the expected annual generation of the Scheme, not installed capacity.</p> <p>It is not true that all apparatus will be replaced on a 15 year cycle. The Waste chapter within Chapter 15: Other Environmental Topics [APP-024/3.1] summarises the anticipated design life and replacement frequency for the main elements of the Scheme. For example, the PV Modules are expected to be replaced after 30 years of operation.</p> <p>Calculations of the benefits of the Scheme have been undertaken considering all factors mentioned here, including expected solar irradiation incident at the site, degradation rate of panels over time, seasonal factors and weather. To help visualise the significant benefits brought forwards by the scheme, the annual electricity output of the scheme has also been converted into an equivalent number of properties, the annual energy demands of which could be generated by the Scheme.</p>

WR	Summary	Applicant response
REP-048	Queries/objects that batteries will not be able store generated electricity in the winter months when demand is highest.	The BESS is designed to provide peak generation and grid balancing services to the electricity grid (including the winter). It will do this primarily by allowing excess electricity generated from the solar PV panels to be stored in batteries and dispatched when required. It may also import surplus energy from the electricity grid.
REP2-113	<p>Concerns there will be too much energy for the UK Grid to handle. For example:</p> <p><i>“Germany has a problem in that the renewable energy they generate cannot be managed by their power grid and people are, in effect, being paid to use excess energy – negative wholesale energy. Can the UK National Grid deal with all the energy that will be generated by the [solar farms] or will they ultimately have the same issues?”</i></p>	<p>There are two main themes to consider; the first of which is the expectation for the increase in electricity demand by 2050 (section 6 of the Statement of Need [APP-004]) and; the need for more energy storage integrated within Great Britain’s energy system (section 11 of the Statement of Need [APP-004]).</p> <p>There is a considerable need for more sources of clean electricity to come forward as more of society, particularly transport, heating and industrial demand becomes electrified. However, storage has a big role to play in ensuring that renewable energy can be stored at times of high production and low demand; to shift the load to be used when it is required. Whilst there are different types of storage, it is both possible and sensible to pair battery storage with solar generation to allow it to “dispatch” a greater proportion of the electricity generated to meet a greater need.</p> <p>Finally, an added benefit of increased storage and, in this case, battery storage, is that this provides a mechanism for electricity elsewhere in the grid system to be stored if demand is low. This is part of the solution to ensuring there is not too much supply of electricity in the system at any one time.</p>
REP-085	States there are no current examples of solar development which has been in situ for 40 to 60 years to measure the Scheme with comparatively.	The UK Government has clear policy support in favour of ground mounted solar PV generating stations as nationally significant infrastructure projects. An operational lifetime of 60 years for the Scheme ensures the Applicant can help deliver decarbonisation and energy security in accordance with this policy.

2.2 Design Parameters of the Gate Burton Scheme

WR	Summary	Applicant response
REP2-108	<p>Objects to design of warehouse and storage building on the basis it is inappropriate for its countryside setting and the mono-pitch roof is at odds with the local vernacular. The blockwork facing material illustrates lack of attempt at good quality design.</p>	<p>The Applicant is happy to consider the design of the warehouse and storage building to ensure it uses appropriate materials and design for its setting. Indicative plans in the application are only to provide an indication of the scale of the building, not to show a proposed design.</p> <p>The warehouse, office and plant storage building is located between the BESS and the on-site Substation, as shown by Work No. 7, with the areas of woodland to the north and south. It is therefore a small element of the development and will be screened or seen as part of the larger development in the area depending on the viewpoint.</p> <p>The building will be a maximum of 7.2m above ground level, with a footprint of 36m x 15m. Of all aspects of development in the area, this is the one where there is more flexibility over the design and appearance, although it will be developed in the context of surrounding energy infrastructure.</p> <p>The Applicant will discuss the design of this building with the relevant planning authorities during the detailed design of the Scheme to establish design principles and anything that can be done with the design, materials and colours of the building to reflect local character and minimise adverse impacts. Requirement 5 of the draft DCO on detailed design is to be discharged by the relevant planning authority so engagement on the design will be iterative and throughout the post consent design process on this and other aspects of design.</p>
<h3>2.4 Alternatives and Site Selection</h3>		
REP-048	<p><i>Queries the location of the substation sites and whether information is provided on their size and staff numbers.</i></p>	<p>The general location of the two substation sites are dictated by the needs of the Scheme, with one substation required on site to transform electricity generated by the solar park to 400kV for transmission along the Grid Connection Corridor, and the other required at the NETS substation to take electricity to the National Grid. The Cottam substation is already in place and</p>

WR	Summary	Applicant response
		<p>the Scheme will connect into a bay of the existing substation rather than create a new substation.</p> <p>In terms of the specific location of the on-site substation, ss set out within Section 4 of the Planning Design and Access Statement Part 1 [APP-006/2.2], the on-site Substation and BESS were carefully located in areas of screened by existing vegetation, woodland and topography. On the western side of the railway the BESS and Substation were located close to the railway to increase the separation distance between this area of the site and sensitive receptors to the west, including residents and heritage assets at Gate Burton. The area near the railway was also considered to be a less sensitive part of the Area of Great Landscape Value (AGLV) than areas further west. Locating the BESS and Substation between the two large blocks of woodland on-site screens the area from views to the north and south and the topography in this area means it would be less visible than in other areas of the Site.</p> <p>There will be up to 14 permanent FTE staff during the operational phase for the solar farm as a whole, although none of these will be employment for the substations specifically.</p> <p>The size of the elements of the on-site substation is specified in the Outline Design Principles [REP2-008].</p>
<p>REP2-096 REP2-084 REP2-083</p>	<p>States onshore wind is a more efficient alternative to solar PV (in terms of land use and electricity output)</p> <p>States onshore wind allows continued agricultural land use.</p>	<p>The statement that wind requires less land than solar is not correct (see Statement of Need Section 7.6 [APP-004/2.1]). Solar farms also allow for some continued agricultural use.</p>
<p>REP2-105</p>	<p>Queries need for solar sites when licences have been issued to extend oil & gas extraction in North Sea, which would provide the energy security needed.</p>	<p>The Statement of Need [APP-004] describes the urgent need for the Proposed Development in relation to Government's legal obligation to achieve Net Zero carbon emissions by 2050, the urgency of action required to achieve that, and Government's strategy of decarbonising the electricity grid by 2035 while building capacity to enable the substitution of carbon-</p>

WR	Summary	Applicant response
		<p>intensive fuels for clean electricity in other sectors including but not limited to heating and transport.</p> <p>In announcing the new licenses, UK Prime Minister Rishi Sunak said: “Even when we’ve reached net zero in 2050, a quarter of our energy needs will come from oil and gas. But there are those who would rather that it come from hostile states than from the supplies we have here at home.” Further, that “the carbon footprint of domestic gas production is around one-quarter of the carbon footprint of imported liquified natural gas” but of course, the carbon emitted from any oil and gas which is used will need to be captured or offset, and technologies to make this possible have not yet been deployed at scale, consented or funded in the UK.</p> <p>Government also cites security of energy supply benefits of developing UK-based hydrocarbon sources, which may be the case, but will not be the case until any identified resources have been developed and become operational.</p> <p>Increasing energy security and reducing carbon emissions are important steps to take. However, deploying zero-marginal cost (therefore independent of global gas markets), zero marginal carbon emissions and secure UK-generated electrical energy, such as that to be generated by the Proposed Development, remains a clear-cut step to removing carbon emissions and eliminating energy security risks.</p> <p>The Applicant considers that the Government’s announcement therefore has no negative implications in relation to the case for the need for the Scheme.</p> <p>Indeed, one could argue that Government’s decision to issue new licences, to support the transition to a lower carbon and more energy secure future, means that our transition to that future has not yet achieved sufficient progress to wean society off hydrocarbons entirely. The remedy to which, is to increase the deployment of low-carbon renewable electricity generation.</p>

WR	Summary	Applicant response
		<p>The Applicant considers that Government’s announcement therefore has positive implications in relation to the case for the need for Proposed Development, in that the need for energy security and zero-carbon emissions fuels, which shield consumers from volatile international energy markets, remains of paramount importance. The Scheme delivers against these needs, as is described in the Statement of Need [APP-004].</p>
REP2-048	States site selection primarily driven by availability of a grid connection.	This is correct, grid connections for large scale schemes are limited and are a major factor in site selection on solar NSIPs.
REP2-079 (7000 Acres)	<p>The Applicant [EN10131/APP/3.1 paragraph 3.3.8] states that 8km is the maximum viable distance for the proposed solar farm from Cottam Power Station but without providing any technical rationale. The nearby Tillbridge solar NSIP has a cable length of 16km between its scheme and the grid connection at Cottam Power Station</p>	<p>The Applicant cannot comment on the site selection process undertaken for other schemes, nor their commercial viability (Cottam Solar Project, West Burton Solar Project and Tillbridge Solar). However, the proposed location for the Gate Burton Energy Park resulted from the Applicant’s four-stage process which is provided in Chapter 3: Alternatives and Design Evolution of the ES [APP-012/3.1].</p> <p>The Applicant is aware of schemes where very proximal grid connections have been required for commercial viability reasons and others where grid connections in excess of 25km are viable. Many factors will play into commercial viability including the size of the Scheme, grid connection costs, requirements by financial backers etc and these vary by project. The Alternatives report, reports on the rationale and decisions taken by Low Carbon in the development of the Gate Burton Scheme in 2021/2022 and make no comment on any other project.</p>
REP2-056 West Lindsey District Council (WLDC)	<p><i>The applicant has submitted ‘Outline Design Principles’ as a submitted application document (EN010131/APP/2.3). The document sets out the guiding principles for the detailed design of the Scheme and is secured through ‘requirement’ number 5 in the draft Development Consent Order (dDCO)</i></p> <p><i>The Outline Design Principles document serves to reiterate the Scheme description and the application documents within which they are expressed, lists the control documents in respect of operation and decommissioning phases, and includes a table listing each element of</i></p>	<p>The Applicant appreciates the detailed review conducted by WLDC and comments made. The Applicant considers that sufficient information has been provided on alternatives assessment.</p> <p>NPS EN-1 paragraph 4.4.3 provides guidance on how consideration of alternatives should guide decision making on DCO applications. It states that “Given the level and urgency of need for new energy infrastructure, the IPC should, subject to any relevant legal requirements (e.g. under the Habitats</p>

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	<p><i>the Scheme ('authorised development) and its 'Design Principle' as a specification and/or parameter.</i></p> <p><i>The applicant has set out the process applied to identify the site within Chapter 3 of the ES. A 4-stage methodology has been applied, resulting in the narrowing down of potential sites within a defined study area.</i></p> <p><i>The approach adopted by the applicant is clear and transparent, and based upon a set of design constraints and/or objectives.</i></p> <p><i>The Applicant has provided clarity on the viability of the solar electricity generating station being within a distance of 8km from the connection point with the National Grid substation. This is made even clear when considering that the site is located closer to the substation than any of the other proposed scheme in the area, namely Cottam and West Burton.</i></p> <p><i>The Applicant has also ensured that by minimising the cable connection length that this will also minimise environmental impacts of the Scheme. This is also true of the scheme in that it has minimised the substations on site, by having the solar located in one area.</i></p> <p><i>In addition to the above, the design of the Scheme has sought to ensure that there is a 'contiguous' nature to the Scheme and the Applicant has viewed the site as a whole, rather than several separate applications which have been pieced together.</i></p> <p><i>The Scheme has also clearly considered access to the site and ensured that these are only found on two-way highways which minimises impacts on the local road network both from a traffic perspective as well as amenity.</i></p> <p><i>Notwithstanding the above, there are elements of the applicant's approach which do demonstrate shortfalls in the design approach.</i></p> <p><i>The applicant does not appear to provide the assessments that it carried out during stage 4 of the design approach. This means that the assessments cannot be assessed by the decision maker.</i></p> <p><i>The site is largely 'contiguous'; however, there are two outliers which contradict this with areas to the north and to the north-west of the site which is contrary to this.</i></p>	<p><i>Directive) which indicate otherwise, be guided by the following principles when deciding what weight should be given to alternatives...".</i></p> <p>These principles include, but are not limited to:</p> <ul style="list-style-type: none"> • consideration of alternatives for policy requirements should be proportional; • decision makers should consider whether alternatives could realistically provide the same capacity and be delivered over the same timescale; • alternatives not studied by the applicant should only be considered where 'important and relevant' to decision making (proposals that are not commercially viable or vague will not meet this criterion); and • wherever possible, alternatives should be identified before an application is made. <p>The Applicant considered the above principles during the site selection approach. As concluded in ES Chapter 3 [APP-012/3.1], the Gate Burton site met all inclusionary and exclusionary criteria, and avoided those areas likely to lead to a policy requirement to consider whether alternative sites would be preferable</p> <p>The Scheme's impact on BMV land is limited to small areas of the site surrounded by other areas; these areas could not be sensibly excluded from the Scheme. Where BMV land could be excluded, it has been in the design process. The ALC Report [APP-162/3.3] did follow a published methodology and standard approach. A semi-detailed soil survey was carried out in accordance with the MAFF (1988) guidelines which is the current methodology for ALC within the Solar and Energy Storage Park. Some 307 auger samples were taken over the 652 ha site. As the ALC grade will not be changed, this provides a suitable level of detail. See the revised Statement of Common Ground [REP-009 to 010/4.3C] which confirms that Natural England are content with the sampling strategy.</p> <p>Impact on Area of Great Landscape Value</p>

WR	Summary	Applicant response
	<p><i>The project has failed to avoid Best and Most Versatile Land (BMV) and with a 60 year life cycle, it is not clear how the land would be improved, or able to be used for agriculture post-decommissioning. This could be because the Agricultural Land Classification (ALC) Report did not follow a published and established methodology.</i></p> <p><i>The assessment of landscape assets does not appear to show regard for the local landscape character, including the impact on the designated Area Of Great Landscape Value (AGLV), and visual effects.</i></p> <p><i>The use of construction access points from single lane minor roads despite also proposing two from two-way highways. The justification for the inclusion of these access points is not provided.</i></p> <p><i>Lack of detailed consideration of cumulative transport impacts during the construction phase within the grid corridor. A commitment to work collaboratively is expressed, however it appears that limited consideration was given to the potential impact (5-7 years in sequence or 2-3 years concurrently) at the site selection stage.</i></p>	<p>As set out in ES Chapter 3 [APP-012/3.1] Areas of Great Landscape Value identified in the Draft Central Lincolnshire Local Plan and Green Gaps in the Draft Bassetlaw Local Plan were also identified but not excluded from development. However, regard has been had to the local landscape character and AGLV throughout the design process, as evidenced in the design section of the Planning, Design and Access Statement [REP2-004 and 006/2.2]. This includes consideration for the site boundary itself, the location of solar panels within the Order limits (e.g. excluding panels near Gate Burton) and the location of the BESS and Substation to the eastern edge of the AGLV away from more sensitive areas.</p> <p>Construction Access Points</p> <p>Construction traffic has been assessed in ES Chapter 13 [APP-022/3.1] which concludes no significant effects as a result of the Scheme.</p> <p>The majority of construction vehicle trips will travel to/ from the main site access on the A156 Gainsborough Road to access the primary construction compound using solely the A-road and B-road network. Further details are contained within ES Chapter 13 [APP-022/3.1]. The Framework CTMP (Appendix 13-E [REP2-020-021/3.3 and as amended]) includes an HGV routing plan which shows that local roads and nearby villages will be avoided where possible, as well as mitigation to avoid and/or reduce impacts, relating to construction traffic including the delivery of materials during construction. This includes the B1398 near Fillingham.</p> <p>Headstead Bank is the only single lane minor road providing construction vehicle access to the Order limits (in this case the Grid Connection Corridor (GCC) during the construction phase. Given the need to access the sections of the GCC between the River Trent and Headstead Bank to the east, and between the railway line and Headstead Bank to the west, providing access via Headstead Bank was considered to be the most preferable option, particularly given the characteristics of other local roads in this area (e.g. Broad Lane) which were considered to be less suitable for accommodating construction vehicles. In order to provide suitable access a number of improvements and mitigation measures are proposed on Headstead Bank, as</p>

WR	Summary	Applicant response
		<p>set out within the Framework CTMP [REP2-020-021/3.3], to allow construction vehicles to safely route to and utilise and travel to/from the GCC accesses via Headstead Bank.</p> <p>Cumulative transport impacts The Cumulative Transport and Access Technical Note which is appended to the Interrelationships with Nationally Significant Infrastructure Projects Report [REP-033/8.2] submitted at Deadline 1 also modelled the Gate Burton, West Burton, Cottam and Tillbridge projects under a worse case peak construction scenario. This assessment provided an updated assessment due to the availability of additional information on the Cottam, West Burton and Tillbridge projects since production of the ES. Increased vehicle numbers on all access routes fell well below the IEMA threshold 30% increase in vehicle numbers with the residual cumulative effect identified as negligible.</p>
<p>2.5 Decommissioning</p>		
<p>REP2-094</p>	<p>Queries how (and when) it will be decided whether the cables will be left in situ on decommissioning. How does leaving them in situ effect the surrounding earth? Other projects refer to removing the cables at decommissioning by pulling them out rather than digging trenches – can this be done for the Scheme?</p>	<p>The Framework Decommissioning Environmental Management Plan [EN010131/APP/7.5] (see paragraph 1.1.2 to 1.1.4) provides that all PV modules, mounting poles, inverters and transformers would be removed and recycled or disposed of in accordance with good practice and market conditions at the time. Buried medium voltage cables would either be removed or left in situ. The specific method of decommissioning the project at the end of its operational life is uncertain at present as the engineering approaches to decommissioning will evolve over the operational life of the Scheme. Any modification work to the National Grid Cottam Substation to facilitate the connection would remain under National Grid’s control. It is not currently known if the buried 400 kV cables would be left in situ or removed. For the purposes of assessment, both scenarios have been considered in the ES.</p>
<p>2.6 Traffic, Transport and Access</p>		

WR	Summary	Applicant response
<p>REP-048 REP2-101</p>	<p>Queries the extent of HGV and light vehicle movements per day on the local road network.</p>	<p>Further details are contained within Chapter 13: Transport and Access [APP-022/3.1]. The Framework CTMP (Appendix 13-E [REP2-020-021/3.3]) includes an HGV routing plan which shows that local roads and nearby villages will be avoided where possible, as well as mitigation to avoid and/or reduce impacts, relating to construction traffic including the delivery of materials during construction.</p> <p>The main routes which will be used by HGVs (excluding abnormal loads) to travel to/ from the Solar and Energy Storage Park as well as the Grid Connection Corridor include the A156 and the A631 to the north, as well as the A156 and the A57 to the south. A maximum of 30 HGVs (60 two-way HGV movements) are expected to travel via the A156 to/ from the north per day, of which only a proportion would be expected to travel via the A631 and the Gainsborough bridge to/ from the west. In addition, whilst a maximum of 30 HGVs (60 two-way HGV movements) are expected to travel via the A156 to/ from the south per day, those travelling to/ from the Solar and Energy Storage Park would travel via the A47 to/ from the east to avoid the Dunham Toll bridge. Only HGVs associated with the Grid Connection Corridor would be expected to travel via the Dunham Toll bridge, which would be a much lower volume of movements (up to 12 HGVs per day). No transformer or cable drum abnormal loads will use the Gainsborough bridge or Dunham Toll bridge. This is highlighted by the Abnormal Load Routing plan (ES Figure 13-6 [APP-105/3.2]) which identifies the key routes as the M180, A15, A1500 and A156, as well as the A57 to/ from the west. This route has been assessed by an expert haulage company (see Annex D in ES Appendix 13-E [APP-168/3.3]).</p> <p>In terms of traffic levels during the operational phase, as stated in Chapter 13: Transport and Access [APP-022/3.3] there will be up to 15 arrivals and 15 departures expected daily. The majority of these trips would be associated with operational staff primarily travelling to and from the site by four-wheel drive vehicles and medium/large vans, with HGVs rarely accessing the site once it is operational.</p>

WR	Summary	Applicant response
REP2-094 REP2-105	Concerns about the effect on the local road surfaces of the increase in both construction and worker vehicles. Concerns that local roads are already badly potholed and crumbling in areas and the increase in weight and frequency of vehicles will lead to more road degradation.	The CTMP [REP2-020-021/3.3] contains mitigation to avoid and/or reduce impacts, relating to construction traffic during construction. This includes a commitment to undertake a road condition survey at various locations which includes sections of carriageway within the vicinity of the proposed access points, as well as the abnormal vehicle route for the transformer to the Solar and Energy Storage Park, covering the route between the A15/A1500 roundabout and the proposed site access on the A156. The road condition survey would be carried out pre-construction, during construction and postconstruction to identify any defects that arise to highways assets/ verges during the construction phase of the Scheme for reinstatement.
REP2-110	Concerns that mitigation hedging will make driving on the rural roads more dangerous.	Hedgerow planting will be established to supplement existing hedgerows and improve ecological and recreational connectivity across the Solar and Energy Storage Park. The majority of hedgerow planting will be situated within the Solar and Energy Storage Park, along individual parcel boundaries and away from the surrounding highway network. Whilst a section of hedgerow planting is identified on the northern side of the B1241 Kexby Lane to the east and west of the proposed site access, visibility splays to/from the proposed access will be kept clear. A maintenance plan will also be developed to ensure the growth of the hedgerows is managed i.e. maintenance will prevent obstruction to any roads or visibility splays. In view of the above, it is considered that mitigation hedging will not make driving on rural roads more dangerous.
REP2-056 WLDC	<p><i>The disruption caused by construction and operational traffic to local communities will be significant and will have an extremely negative impact upon day-to-day life. Residents will experience additional HGV and AIL traffic upon local roads which, alongside traffic control measures, will elongate journey times in the immediate local and wider areas across the district.</i></p> <p><i>The increase in construction traffic using the rural highway network will increase the perception of a decrease in highway safety, making it less attractive to local communities to use the network for recreational purposes in particular. The decline in noise and air quality conditions will further degrade the quality of life for communities, resulting in a significant decline in their living standards for a period of over 5 years.</i></p>	<p>Impact of construction and operation Traffic</p> <p>A Framework Construction Traffic Management Plan (CTMP) has been developed and is provided as ES Volume 3: Appendix 13.E [REP2-020-021/3.3]. The CTMP contains mitigation to avoid and/or reduce impacts, relating to construction traffic. For example, the working hours to be secured through the F-CTMP mean that construction workers will avoid travelling during the network peak hours (08:00-09:00 and 17:00-18:00) based on their shift patterns which have been designed to minimise additional trips on the surrounding highway network at the busiest times. The secured HGV routing means that HGVs will also avoid rural routes such as Station Road, Clay Lane, Torksey Ferry Road and Marton Road (south of the proposed construction access).</p>

WR	Summary	Applicant response
	<p><i>The reduction in the quality of the environment alongside the conflict cause by construction traffic, will have a negative impact on recreational activity, to the detriment of local communities.</i></p> <p><i>The influx of construction activity and worker over a period in excess of 5 years will place pressure on accommodation and local services in the area. The disruption, inconvenience and uptake of accommodation will dissuade visitors (both local and from further afield) which will have an impact upon local services such as tourist accommodation (Bed & Breakfast, hotels etc), shops and public houses.</i></p> <p><i>The long construction period (both individually for the Gate Burton scheme and cumulatively with other solar projects) will have an impact on the desirability to live in the locality, resulting in concerns regarding the value of properties and businesses.</i></p>	<p>Construction traffic has been assessed in Chapter 13: Transport and Access [APP-022/3.1] which concludes no significant effects as a result of the Scheme, including with respect to congestion and driver delay, highway safety, as well as non-motorised users e.g. severance, pedestrian amenity and fear & intimidation. Five junctions were assessed with respect to driver delay, where a very low magnitude of change (<30%) was expected during both of the assessed AM and PM periods as a result of construction traffic. In terms of the perception of highway safety, the assessment of fear & intimidation identified a negligible impact for all receptors except for B1241 Kexby Lane and PRoW NT SouthLeverton BOAT16 which were assessed as minor adverse (not significant). For B1241 Kexby Lane, this was attributed to the increase in traffic as a result of construction workers, rather than HGVs. For the PRoW NT SouthLeverton BOAT16, this was attributed to a haul road crossing point and temporary diversion (to accommodate the cable installation), rather than an impact relating to the rural highway network.</p> <p>In terms of the duration of any potential distribution, the proposed construction phase of the Scheme is currently predicted to be 24-36 months between 2025 and 2027, with the assessment based on the shorter end (24 months) of this construction programme. Therefore, the construction activity (and associated vehicle movements) is not expected to take place over a five year period. Any traffic control measures required during this time are also expected to be localised for a short duration at each location e.g. Temporary Traffic Management (TTM) measures to accommodate abnormal vehicles, the construction of access points or the installation of cables in the instance that trenchless methods are not employed.</p> <p>In terms of traffic levels during the operational phase, as stated in Chapter 13: Transport and Access [APP-022/3.3] there will be up to 15 arrivals and 15 departures expected daily. The majority of these trips would be associated with operational staff primarily travelling to and from the site by four-wheel drive vehicles and medium/large vans, with HGVs rarely accessing the site once it is operational. Therefore, the operational phase traffic impact on communities will be negligible.</p>

WR	Summary	Applicant response
		<p>Noise and air quality</p> <p>Chapter 14: Human Health [APP-023/3.1] considers the impact on human health and wellbeing during the construction and operational period, resulting from air quality, transport and access, socio-economics and noise and vibration. These chapters have found no adverse significant residual effects related to human health and wellbeing.</p> <p>A full noise and vibration assessment is provided in Chapter 11: Noise and Vibration [APP-020/3.1] of the ES which concludes no significant effects.</p> <p>This assessment accounts for HGV movements on the site and public roads. Although HGV movements are likely to be noticeable, the overall resulting change in road traffic noise is identified as not significant as stated in Chapter 11: Noise and Vibration [APP-020/3.1]. Measures to manage construction traffic are included within Appendix 13-E: Framework CTMP [REP2-020-021/3.3].</p> <p>In terms of the construction works, temporary construction compounds have been located so they are not in close proximity to sensitive receptors. Whilst noise may be audible for period, the level at receptors is not considered to be significant. Construction noise levels will be controlled through the use of embedded mitigation and the use of the CEMP. A Framework CEMP has been submitted as part of the DCO Application [APP-224/7.3].</p> <p>In terms of the operational phase, as part of embedded mitigation measures, the distance between noise sources and receptors has been maximized as far as reasonably practicable. Measures to minimise potential adverse effects associated with the operational phase are outlined in the Framework OEMP [APP-225/7.4]</p> <p>Network for recreational purposes</p> <p>The Streets, Rights of Way and Access Plans [AS-006 to 007/210] and Public Right of Way Management Plan [APP-229/7.8] shows that no public</p>

WR	Summary	Applicant response
		<p>right of way will be closed either during construction or operation. However, in order to ensure safe separation between construction activities and those members of the public wishing to travel on the public right of way network, a number of public rights of way, notably on the grid connection cable route, will be temporarily diverted during construction. However, these routes will be reinstated onto their original alignment following construction.</p> <p>The Traffic Management Plans [REP2-020-021/ 3.3] outlines areas of the local road network where traffic management may be required to facilitate safe access / egress for construction vehicles. The duration and extents of these traffic management areas will be agreed with the respective Local Authority. However, it is anticipated that pedestrian connectivity and footways will remain open for use.</p> <p>Accommodation and local services An assessment of the impact of the Scheme on local business and local employment including agricultural jobs is presented within Chapter 12: Socio-economics and Land Use [APP-021/3.1].</p> <p>It is estimated the Scheme will require an average 400 gross direct full-time employment (FTE) jobs on-site per day during the construction period. Although these jobs are temporary, they represent a positive economic effect for a substantial period</p> <p>The Applicant has developed an Outline Skills, Supply Chain and Employment Plan [APP-228/7.7] which is secured by Requirement 18 of the draft DCO and aims to identify and maximise opportunities for local communities.</p> <p>Properties and businesses Impacts on businesses are assessed under 'local amenities and land use' in Chapter 12: Socio-economics and Land Use [APP-021/3.1]. No adverse effects are expected upon businesses during construction or operation of the</p>

WR	Summary	Applicant response
		Scheme. Positive effects include the creation of employment through both the construction and operational phases.
REP2-056 WLDC	<p><i>WLDC acknowledges that the key traffic impacts will be experienced during the construction phase. Notwithstanding the temporal nature of construction impacts, WLDC consider that the magnitude of these impacts requires all impacts to be identified and careful control exerted upon them to protect the highway safety and amenity for local communities.</i></p> <p><i>The LIR details inadequacies identified in the ES with regard to traffic and transport (LIR section 11). Whilst uncertainties and shortfalls have been identified, it is hoped that these will be explained and/or rectified during the course of the examination.</i></p> <p><i>In addition to the issues discussed in the 'Impact on Communities' section above, the key traffic and highway concerns that weight negatively in the planning balance are:</i></p> <ul style="list-style-type: none"> i) <i>Construction access – whilst WLDC supports the use of principle construction access direct from A156, it is not understood why the additional secondary accesses from minor roads are wholly necessary to deliver the project. WLDC requests further consideration over whether all secondary accesses are necessary and seek controls over the use if such accesses (vehicle types and frequency) would assist in alleviating these concerns.</i> ii) <i>Cumulative – detailed commentary on the potential cumulative traffic impact is discussed in relation to the cable corridor below. In summary, the potential impacts of several cumulative NSIP-scale solar project being constructed either concurrently, or in sequence (5-7 years for 3 projects) would have significant impacts on communities. Although temporal in nature, communities will face such impacts for a potential period spanning a decade and therefore require to afforded significant weight in the decision making process. Impact on local communities - Whilst the applicant has demonstrated the technical</i> 	<p>Local Impact Report – Traffic and Transport The Applicant has provided responses to the comments raised within LIR Section 11 within the Applicant Responses to Local Impact Reports [REP2-044/8.9].</p> <p>Construction Secondary Accesses The majority of construction vehicle trips (70% of construction staff and 62% of HGVs and LGVs) will travel to/ from the main site access on the A156 Gainsborough Road to access the primary construction compound using solely the A-road and B-road network. Further details are contained within ES Chapter 13 [APP-022/3.1]. The Framework CTMP (Appendix 13-E [REP2-020-021/3.3] and as amended]) includes an HGV routing plan which shows that local roads and nearby villages will be avoided where possible, as well as mitigation to avoid and/or reduce impacts, relating to construction traffic including the delivery of materials during construction.</p> <p>A peak total of approximately 35 vehicles are expected to use the Kexby Road South access daily, consisting of approximately 17 staff vehicles, 12 HGVs and 6 LGVs. This access, along with the Marton Road access (see below), will be used to access the parcels to the east of the railway line. A peak total of approximately 20 vehicles are expected to each use the Kexby Road North access and the Marton Road access daily, consisting of approximately 12 staff vehicles, 5 HGVs and 3 LGVs. The Kexby Road North access is required to access the land parcel to the north of Kexby Lane, which cannot be accessed via the main access on the A156. The Marton Road access will be used to access a few parcels within the south-eastern corner of the site. Again, the Framework CTMP (Appendix 13-E) [REP2-020-021/3.3] includes an HGV routing plan which shows that use of local roads will be minimised as far as possible.</p> <p>Cumulative Traffic Impact</p>

WR	Summary	Applicant response
	<p><i>measures to facilitate construction traffic, the use of narrow rural roads to deliver the project will cause significant disruption to communities and will deter the use of such roads for recreational purposes.</i></p> <p><i>WLDC maintain an objection to the project on the above transport matters.</i></p>	<p>The cumulative impact of the Scheme along with other proposed solar projects in the local area are considered within Chapter 16: Cumulative Effects and Interactions [APP-025/3.1]. No significant adverse effects are predicted from traffic for the scheme individually or when considered alongside other schemes. The Applicant has re-assessed this conclusion in the light of additional information produced for the West Burton and Cottam DCO applications and in the Tillbridge Preliminary Environmental Impact Assessment. This assessment is presented in a Technical Note in Appendix D to the Report on the Interrelationships with other NSIPs report [8.2] submitted at Deadline 1. It concludes that there are no changes to the assessment or conclusions as a result of further information.</p> <p>In terms of narrow rural roads, the only such route which will be utilised by construction vehicles (i.e. HGVs) to deliver the project will be Headstead Bank, to access two sections of the Grid Connection Corridor within Nottinghamshire. However, vegetation clearance and potential carriageway widening will be carried out on Headstead Bank to accommodate construction vehicles travelling to/ from the Grid Connection Corridor to avoid any potential disruption, as identified within the Framework CTMP (Appendix 13-E) [REP2-020-021/3.3]. The Order limits include the areas required to accommodate the above improvements where required. The proposed extent of any carriageway works to be delivered in support of the Scheme is to be agreed with the local highway authority. Specifics of carriageway widening or improvement works will be provided within the Detailed CTMP(s).</p>
<p>REP2-056 WLDC</p>	<p><i>In determining this application, WLDC contend that the Secretary of State must consider the cumulative construction traffic impact and carry out an assessment against the relevant policy framework.</i></p> <p><i>The ‘worst-case’ scenario could range from all three projects (and more) being constructed concurrently, or they could be constructed in sequence. The scale of impact could vary from a multiplication of impacts or could be experienced for a 5-7 year construction period.</i></p> <p><i>The level of information provided in the ES and sought to be controlled through the Construction Environmental Management Plan (CEMP) and the Construction Traffic Management Plan (CTMP) is inadequate in</i></p>	<p>Cumulative Traffic Impact</p> <p>The cumulative impact of the Scheme along with other proposed solar projects in the local area are considered within Chapter 16: Cumulative Effects and Interactions [APP-025/3.1]. No significant adverse effects are predicted from traffic for the scheme individually or when considered alongside other schemes. The Applicant has re-assessed this conclusion in the light of additional information produced for the West Burton and Cottam DCO applications and in the Tillbridge Preliminary Environmental Impact Assessment. This assessment is presented in a Technical Note in Appendix D to the Report on the Interrelationships with other NSIPs report [8.2] submitted</p>

WR	Summary	Applicant response
	<p><i>explaining how activities will be co-ordinated and mitigation implemented. Due to the lack of rigour in assessing the cumulative scenarios, the likely impacts upon communities and the environment have not been identified or calibrated to a sufficient detail. WLC consider that the impacts of just two project being constructed wither concurrently or in sequence could result in unacceptable impacts that fail to comply with policy.</i></p> <p><i>To address this uncertainty, WLDC request that more detail be provided in the draft 'Plans' cited above to explain how concurrent projects will be co-ordinated. For example, the gate Burton application is silent on the actual number of Abnormal Indivisible Loads (AILs) that will be required to deliver project components. Whilst such movements will be controlled by the Police, in the event that multiple AIL movements occur in close proximity could result in significant traffic impacts that are not currently identified. A mechanism to control such movements could be through the adoption of a traffic co-ordinator that manages the frequency of AIL movements, and the general movement of other construction traffic in the area.</i></p> <p><i>WLDC concern stems from a currently un-calibrated impact on local communities as they travel through the district on strategic roads such as the A156, A1500, A15 and A631. The cable corridor is a particular focus due to the condensed activity that could occur over a significant timescale and the extent to which this affects local residents in Marton, and wider travel throughout the district.</i></p>	<p>at Deadline 1 and includes a review of the A156, A1500, A15 and A631. It concludes that there are no changes to the assessment or conclusions as a result of further information.</p> <p>For the Grid Connection Corridor, there will be a daily peak of 16 LGVs and 12 HGVs in addition to the 25 construction workers. The associated vehicle trips are expected to be split across multiple access points including those to the east of the River Trent (in Lincolnshire) and those to the west of the River Trent (in Nottinghamshire). In view of the minimal levels of vehicle trips to be generated and given that different access points would be utilised than those used to access the Solar and Energy Storage Park, the Grid Connection Corridor is not expected to have a material impact on the surrounding highway network. A cable drum transporter (24.6m in length) represents the only abnormal vehicle which will be required for the Grid Connection Corridor. Whilst it is acknowledged that the actual number of these vehicles is currently unknown, these will be spread across multiple access points (arrivals and departures) which should reduce the likelihood of multiple AIL movements occurring in close proximity. The Detailed CTMP(s) will include further details on AILs, including how these movements would be managed.</p> <p>At present there is no certainty that the other schemes will be consented and therefore that a Joint Construction Traffic Management Plan would be required. If they are all consented, they may be subject to different requirements on construction traffic or timescales, which may make production of one document across all projects challenging. The Applicant has no authority over the actions of other parties and the DCO for the Gate Burton scheme, if made, would not directly govern their activities. For all these reasons, a firm commitment cannot be made to prepare or agree a Joint CTMP. Notwithstanding the above, it is the Applicant's intention to work with the developers of Cottam, West Burton and Tillbridge projects to develop joint mitigation and this approach has been agreed between the parties as evidenced in the Interrelationships Report and the cooperation agreement entered into. The Framework CTMP for the Gate Burton Energy Park sets out this possibility in paragraph 3.2.6 and 7.6.1 [REP2-020-021/3.3]. A Joint CTMP could support implementation of shared mitigation measures such as</p>

WR	Summary	Applicant response
		<p>joint traffic management, joint consultation with Lincolnshire County Council traffic officers, combined vehicle access and routing plans, shared use of construction compounds, taking a holistic approach to construction traffic planning and management. In the meantime, the four developers are working closely together to identify further ways to collaborate and reduce impacts on communities and the environment. Progress on this is reported in the Interrelationships Report submitted at Deadline 1 [REP-033/8.2] and will be updated throughout the Examination. One of the most recent areas of discussion has been around the potential to combine accesses within the shared grid connection corridor. Discussions are ongoing on this point.</p>
<p>2.7 Flood Risk and Water Environment</p>		
<p>REP2-056</p>	<p><i>There are local concerns about drainage and flooding, at that any new development will add further pressure on existing infrastructure and any associated increase in flood risk.</i></p>	<p>A Flood Risk Assessment is provided in Appendix 9-D [APP-142/3.3] which indicates that there would be no increase in flooding from any source, given implementation of measures set out in Appendix 9-C: Outline Drainage Strategy [APP-139/3.3] and Chapter 9: Water Environment [APP-018/3.1]. In addition, Appendix 9-C: Outline Drainage Strategy [APP-139/3.3] ensures that appropriate allowances for climate change have been considered for the management of surface water.</p>
<p>REP2-100</p>	<p>Concerns regarding flooding affecting residents on Kexby Lane. Resident has been flooded 3 times in the past and is concerned that Scheme will further increase risk of flooding.</p>	<p>A Flood Risk Assessment is provided in Appendix 9-D of the ES [APP-142/3.3] that acknowledges the existing flood risk issues affecting properties on Kexby Lane (refer for Paragraph 4.4.5). The draft NPS EN-3 (Renewable Energy Infrastructure) indicates that 'As solar PV panels will drain to the existing ground, the impact will not, in general, be significant'. The implementation of Appendix 9-C: Outline Drainage Strategy [APP-139 to 141/3.3] ensures that appropriate allowances for climate change have been considered and the mitigation measures outlined in Chapter 9: Water Environment [APP-018/3.1] demonstrate that flood risk will not be increased. Chapter 9: Water Environment [APP-018/3.1] provides a full assessment of impacts to the water environment during the construction and operational stages.</p>

WR	Summary	Applicant response
2.8 Public Rights of Way		
REP2-099	Bridleway located on the corner of Marton Road has not been identified by the Applicant. Concerns that no consideration made for users of this bridleway.	Visual effects on Bridleway LL Stow 70/1, on the corner of Marton Road, have been assessed at Construction, Year 1, Year 15 and Decommission in Section 10.9 within ES, Volume 1, Chapter 10: Landscape and Visual Amenity [APP-019/3.1] .
2.10 Landscape and Visual Impact		
REP2-100	Concerns regarding visual impact assessment near Kexby Lane, in particular, concerns that when conducting its assessment, the Applicant positioned cameras at lowest point of the property, not facing directly the proposed development, and based the visual impact report from this. That position is lower than the property's ground floor Section 10.9 of ES Volume 1, Chapter 10 Landscape and Visual Amenity.	<p>The Kexby Lane property was visited twice in 2022 following written correspondence with the resident. The first visit was to identify and discuss views with the resident, and the second one to take the verified photography. Photography at windows from inside a private house are not carried out for health and safety reasons. The location of windows was noted and informs the assessment.</p> <p>Viewpoints have been taken outside the house, which was agreed with the resident at that time. Photomontage 7a faces straight out towards the proposed development to the east from a viewpoint location adjacent to the house at garden level. It provides the existing view and the superimposed development at that location, which is indicated in Figure 10-19 Residential Viewpoint Locations [APP-091/3.2]. The photomontage was submitted to the resident but was not included in the ES for privacy reasons as stated in Appendix 10-G: Residential Visual Amenity [APP-150/3.3]. The same appendix provides an individual visual impact assessment for this property. Photomontages 10-1 and 10-2 included in Figure 10-16 Photosheets 1-23 Compressed [APP-079 to -082/3.2] illustrate an open view adjacent to the Kexby Lane property but on publicly accessible grounds. Following discussions with the resident and design reviews in order to minimise visual effects in that particular area, a number of mitigation measures have been implemented.</p> <p>These include an offset of panels and other infrastructure from residential properties bordering the site at Kexby Lane, therefore reducing visual effects from Viewpoint 10 and 7a. Offsets are shown on Figure 2-4 Indicative Site</p>

WR	Summary	Applicant response
		<p>Layout Plan [APP-033/3.2]. Offsets will also reduce adverse amenity effects from construction and operational activity. Advanced planting is also proposed along the boundary of the panels in this location, to screen views from Viewpoint 10 and 7a, whilst still maintaining the openness of the view with a large triangular offset area of species rich grassland adjacent to Viewpoint 10 and 7a.</p>
REP2-110	<p>Objects to high hedges used as mitigation/screening on the basis that this will change the landscape character of the local area, which is known for its open spaces and “big skies”.</p>	<p>The existing vegetation pattern within the study area includes already tall hedgerows or hedgerows with trees (for example between Fillingham and Willingham by Stow along Willingham Road, along sections of Clay Lane or Willingham Road south of Gate Burton). Tall hedgerows are therefore not considered uncommon. A careful balance has been considered between additional screening required and the retention of open views. The Scheme design has focussed on mitigating by design as a first principle, by sequentially locating infrastructure behind natural screening barriers and therefore reducing the need for additional screening. Where necessary, screening has been targeted to reinforce existing vegetation, followed by additional planting in selected locations. In addition, areas of advanced planting are being considered in a number of locations to ensure planting is effective at screening at an early stage in the project.</p> <p>Further information is available within ES Volume 1, Chapter 10: Landscape and Visual Amenity [APP-019/3.1] and in Figure 10-23 Outline Landscape Masterplan [APP-095/3.2].</p>
REP2-110 REP2-079 (7000 Acres)	<p>Concerns on the length of time it will take for the hedges/screening to grow.</p>	<p>Areas of advanced planting are proposed in a number of locations to ensure screen planting is effective at an early stage in the project to mitigate significant glint and glare effects; this is considered in the assessment and the 15 year time period does not apply.</p> <p>The majority of screening along the Order limits will take advantage of existing vegetation, which will be maintained in a way that it can grow taller every year until reaching the desired height. Gaps will be reinforced with additional planting where required. New screen planting, which is not considered advanced planting, will require a maximum 15 year period to achieve the functional maturity of screening vegetation. The visual effects of this are considered in the assessment.</p>

WR	Summary	Applicant response
REP2-099	<p>Concerns that Scheme does not reflect the design principles set out in the Landscape Institute Technical Guidance Note 04/20:</p> <p><i>“The Applicant has approached the assimilation of the site into the landscape by using vegetation to screen the proposed development. Design principles as promoted by the Landscape Institute in their document; Infrastructure – Technical Guidance Note 04/20, state that to do so ‘ignores the opportunity to enhance or positively change the existing character of the landscape, improving visual experience and amenity’. The Applicant has stated in the Outline Landscape and Ecology Management Plan (EN10131/APP/7.10 – 2.1.3.) that in ‘developing the landscape design strategy, particular consideration was given to’ this document. However, vegetation is the only method of landscape mitigation applied. Therefore, the Applicant has not adopted this principle as stated in the OLEMP”.</i></p>	<p>Careful consideration of the locations of any proposed planting has taken place, including offsets to maintain a balance between screening and the openness of views, using planting to screen security fencing, reinforcing existing vegetation and strategic planting to mitigate any potential effects of glint and glare on sensitive receptors. Measures other than planting and offsets from boundaries as shown on Figure 2-4 Indicative Site Layout Plan [APP-033/3.2] include the selection of non-tracker solar panels, which reduces the height of solar panels across the site, offset of panels and other infrastructure from residential properties bordering the site at Kexby Lane, Willingham Road, Clay Farm and Marton Road as well as the identification of areas without panels (for example east of Gate Burton estate). These measures will reduce adverse amenity effects from construction and operational activity. The introduction of additional hedgerows and the reinforcement of existing hedgerows will enhance the physical landscape as it will repair existing hedgerows in poor condition and reconnect existing hedgerows with new hedgerows, which were removed over time to give way to larger fields for agricultural purposes.</p>
REP-041	<p>Queries how the land under the PV panels will be managed</p>	<p>The land under the PV panels can be managed via mowing or sheep farming to achieve the grassland management outcomes specified in the OLEMP [APP-225/7.10].</p>
REP2-079 (7000 Acres)	<p>The Applicant has allocated an 8 km zone of influence for Landscape and Visual Amenity. ES Chapter 10. Landscape and Visual Amenity identifies “No significant cumulative effects” despite the four solar NSIPs replacing approximately 10,000 acres of productive farmland with an industrial landscape. It is noted that the 8km zone of influence applied by the Applicant conveniently ends short of the elevated Cliff villages and roads, from where the view over the Trent Plain will be severely impacted.</p>	<p>The cumulative ZTV’s, shown in Figures 10-13 to 10-15 [APP-076/3.2 to APP-078/3.2], consider a 5km radius from the order limits of the Scheme and a 5km radius from the order limits of each 3rd party solar farm, namely Cottam, West Burton and Tillbridge Solar Farms. Sections of each study area overlap, and the combined theoretical cumulative visual effects are illustrated. The assessment of cumulative views from elevated viewpoints to the east namely at Tillbridge Lane Viewpoint and along Middle Street / B1398 (along the cliff) are illustrated in Photomontages C4 and C5 which are included in Figure 10-17 Photosheets Cumulative C1-C5 Compressed [APP-083 to -086/3.2]. Gate Burton Solar Farm will not be discernible from these elevated locations and therefore not result in cumulative visual effects.</p>
REP2-051 Lincolnshire	<p><i>...whilst the project would produce clean renewable energy that would support the nations transition to a low carbon future and deliver significant biodiversity net gain benefits through the creation of</i></p>	<p>Cumulative visual effects of the Scheme in conjunction with Cottam, West Burton and Tillbridge Solar Farms were assessed as being minor to negligible and not significant. Whilst significant landscape cumulative effects are limited</p>

WR	Summary	Applicant response
<p>County Council (LCC)</p>	<p><i>mitigation and enhancements as well as other more limited positive impacts (as defined in the Council's Local Impact Report) these positive impacts are not outweighed by the negative some significant impacts that arise given the overall scale and size of the development both on its own and in combination with the three other solar projects proposed in this geographical area.</i></p> <p><i>This is due to the long-term and negative impacts that this proposal would have on the landscape character and appearance of the area through the replacement of large areas of agriculture with solar development. Together with the cumulative impact from the other three projects in this area.</i></p> <p><i>The cumulative change to the landscape will be considerable and the combination of two or more sites has the potential to change the local landscape character at a scale that would be 'of more than local significance' or would be 'in breach of recognised acceptability, legislation, policy or standards' The cumulative impact of four adjacent Nationally Significant Infrastructure Project solar sites has the potential to effect the landscape at a regional scale through predominantly a change in land use from agricultural arable to solar creating an energy landscape as opposed to a rural/agricultural one at present. This also has the potential to change the character from an agricultural landscape to that of an energy landscape when travelling through the area and the sequential effects of multiple large scale solar sites of which some are spread over extensive fragmented red line boundaries exacerbating the perception of being surrounded by solar development.</i></p>	<p>to moderate adverse landscape effects when assessed in conjunction with Cottam, West Burton and Tillbridge Solar Farms together.</p> <p>The Applicant and other developers have continued to work collaboratively in a number of areas to respond to continued dialogue with Lincolnshire County Council and in response to relevant representations and written questions received. This work includes efforts to reduce the extent of visibility splay and associated vegetation removal (as set out in further detail in the Access Updates and Cumulative Impact Assessment [8.10] Technical Note also submitted at Deadline 2). This has reduced the removal of vegetation and semi mature trees for the access points compared to the design presented and assessed in the ES. There has therefore been continued work in relation to the planning and management of effects within the shared Grid Connection Corridor. This will continue and include working collaboratively to further minimise total area of hedgerows to be removed. Further information is provided within the Interrelationships Report [REP-033/-8.2] submitted at Deadline 1 and future iterations to be submitted to the Examination.</p> <p>ES Appendix 10-H Cumulative Effects [APP-151/3.3], states that at the scale of County and District Landscape Character Areas all four solar projects will lie within the Trent Valley LCA. Although inter-visibility between the schemes will be limited and views in combination typically dominated by the closest solar farm, others are likely to be visible as a distant but discernible element in the view. The relatively flat nature of the landform (albeit rising to the Willingham ridgeline) is such that no elevated views of the footprint of the solar farms will be obtained. Experience of them as an element influencing landscape character will typically be in sequence through repeated views from footpaths or roads. The scale of addition to the landscape of the Trent Valley LCA assuming each scheme includes mitigation through hedgerow or other planting is such that solar farms will be a notable localised element rather than a key characteristic. Therefore, the Trent Valley LCA will not be defined by solar farms or become a "solar farm landscape" in which they are the defining characteristic. Locally at the scale of LLCA 06/LLCA 07 and LLCA 08 solar farms will represent a medium magnitude of change through</p>

WR	Summary	Applicant response
		<p>addition and longevity such that effects on landscape character will be of moderate significance.</p>
<p>REP2-056 WLDC</p>	<p><i>The Gate Burton scheme will cause significant harm to the landscape character of the area, altering it from its agricultural use and character potentially irrevocably. The visual effects on communities are visitors will be significant, harmfully altering the experience of the landscape in its own right and as a destination.</i></p> <p><i>With a consent period of 60 years being sought, this timescale should not be considered temporary in the decision making process. Generations of communities would experience the solar farm landscape for most of their lives and to dismiss such impacts as temporary is disingenuous. Whilst site decommissioning is likely to result in the removal of much of the infrastructure, there remains uncertainty about what may remain and consequently hindering a return to agricultural use and the districts cultural landscape character. WLDC therefore disputes the applicant's contention that the impacts of the development are temporary and reversible.</i></p> <p>Area of Great Landscape Value</p> <p><i>Having identified the designated Area of Great Landscape Value as part of the site selection and alternatives process (as protected under Policy S62 of the statutory development plan), WLDC are unclear as to why the applicant has continued to promote a project that had direct negative impacts upon it. WLDC consider this policy to be a 'hard' constraint, in that the project should have been designed to avoid such impacts.</i></p> <p><i>It appears from the application documents that justification for this harm is based solely on the policy contained in paragraph 5.9.14 of NPS EN-1, which states that '...local landscape designations should not be used in themselves to refuse consent, as this may unduly restrict acceptable development'. WLDC consider that this justification is weak. The purpose of paragraph 5.9.14 is to facilitate development that benefits from a 'relevant' NPS; that is development that benefits from a</i></p>	<p>ES Volume 1, Chapter 10: Landscape and Visual Amenity [APP-019/3.1] assesses and describes the effects of the Scheme on the landscape character and the visual amenity. Section 10.11 Residual Effects and Conclusions, states the remaining effects following the establishment of proposed landscape mitigation measures. The assessment concludes that there will be direct and significant alterations to the local landscape character, where the Gate Burton Energy Park will be located and indirectly on sections of adjoining local landscape character areas. However, the assessment concludes that the wider landscape character at national, regional and county / district level will not be significant due to the scale of these landscape character areas.</p> <p>Area of Great Landscape Value (AGLV)</p> <p>Information regarding the designation of the AGLV within West Lindsey has been difficult to obtain, and an evidence base for the designation is not available. If this was able to be obtained from West Lindsey District Council (WLDC) this would have assisted the assessment process to understand what are the elements / key characteristics that make up the 'distinctive value', particularly when the Policies Map for the Central Lincolnshire Local Plan 2023 shows a number of independent AGLV's at various locations across Lincolnshire.</p> <p>In the absence of this information, the applicant created a number of local landscape character areas (LLCA), which provide relevant localised key characteristics in order to assess landscape effects of the Scheme. These LLCA's include sections of the AGLV south of Gainsborough, which have been assessed in terms of landscape effects in ES Volume 1, Chapter 10: Landscape and Visual Amenity [APP-019/3.1]. This includes a landscape assessment of the AGLV in its own right at construction and operation.</p> <p>The separate AGLV further east, which includes Lincoln Cliff, will not be affected by the Scheme as it will not be discernible as illustrated in</p>

WR	Summary	Applicant response
	<p><i>'presumption in favour'. The proposed development does not benefit from such policy support and therefore is unable to also draw upon policy that allows it to override local landscape designation as a matter of principle. WLDC consider the application to fail to accord with Policy S62 of the adopted local plan and this must be afforded significant weight in the decision making process. The inherent harm to this long adopted and valued landscape designation weighs heavily against the proposal, especially as harm could readily have been avoided through project design.</i></p> <p><i>Whilst the proposed solar panel exclusion zones provide a buffer to sensitive areas; it is still likely that there areas will experience a change in the character of the area. In addition, areas that are not included within the order limits, will also experience significant change in the setting of the area. Based upon information available to WLDC, it is estimated that 9.92% of the 'Northeast and east of Gainsborough AGLV' is contained within the Gate Burton Order Limits, equating to approximately 226.22 hectares (see Appendix A). This harm to the AGLV is significant and WLDC consider the justification for causing such an impact to be inadequate both in terms of EIA and compliance with policy. Having correctly identified the AGLV as a key constraint during the design stages of the project, it is unclear on what basis the applicant has considered it acceptable to pursue a project design that has such a significant impact upon a landscape designation that has been re-affirmed in the statutory development plan in only April 2023.</i></p> <p><i>WLDC maintains a strong objection to the proposal due to its failure to accord with statutory Policy S62. Were components of the project within the AGLV removed, WLDC would be prepared to revisit its judgement on this matter.</i></p>	<p>Photomontage 7 included in Figure 10-16 Photosheets 1-23 Compressed [APP-079 to -082/3.2], and Photomontages C4 and C5 included in Figure 10-17 Photosheets Cumulative C1-C5 Compressed [APP-083 to -086/3.2].</p> <p>WLDC states that the Applicant cannot 'benefit' from policy support in NPS EN-1 because it did not mention solar development. The Applicant disagrees. NPS EN-1 is dated and did not conceive of solar projects exceeding 50MW, but was written to guide decision-making on large scale renewable energy schemes and consequently is a relevant and important matter when taking a decision on a large scale renewable energy scheme.</p> <p>Further the wording in the Revised Draft NPS EN-1 published in March 2023 is very similar to that in NPS EN-1, with the latest draft stating in paragraph 5.10.11 that:</p> <p><i>'Outside nationally designated areas, there are local landscapes that may be highly valued locally. Where a local development document in England or a local development plan in Wales has policies based on landscape or waterscape character assessment, these should be paid particular attention. However, locally valued landscapes should not be used in themselves to refuse consent, as this may unduly restrict acceptable development.'</i></p> <p>And at 5.10.34 that <i>'The Secretary of State should judge whether any adverse impact on the landscape would be so damaging that it is not offset by the benefits (including need) of the project'</i>.</p> <p>Revised Draft NPS EN-1 was written to guide decision making on solar NSIPs, has been recently published and is at an advanced stage so should have significant weight as a relevant and important consideration in decision making. The fact that the policy text on local landscapes in the 2023 draft is very similar to that in the designated NPS EN-1 from 2011 shows both that the Government considers that this text also applies to solar development and significant continuity of approach over time. This increases the weight that can be given to the policy in the designated NPS EN-1.</p>

WR	Summary	Applicant response
		<p>The principle that the designated and draft NPS EN-1 and NPS EN-3 are relevant and important matters when taking decisions on solar NSIPs has been established in recent decisions by the Secretary of State. For example, this principle is stated in paragraph 4.2 of the Secretary of State’s Decision Letter on the Longfield Solar Farm published on 26 June 2023.</p> <p>The Applicant’s position on compliance with the Local Plan as a whole and policy S62 in particular is set out in the Planning, Design and Access Statement [REP2-004 and 006/2.2].</p>
<p>2.11 Fire and Battery Safety</p>		
<p>REP-048</p>	<p>States the local fire service does not have ability to respond to deal with a fire emergency on the site.</p>	<p>The Applicant has engaged with the Lincolnshire Fire and Rescue Searches to advise on design and a safety management plan and to provide the emergency services with relevant information if requested. The Applicant has had a virtual meeting with Lincolnshire’s Fire and Rescue team and this engagement will continue throughout the development, construction and operation of the Scheme. The local fire service has not raised concerns about their ability to respond to a fire emergency on the site and the design of the Scheme has incorporated measures to reduce the risk both of a fire occurring and of the LFRS needed to respond if one occurs (due to measures on site).</p> <p>The Emergency Response Plan (ERP) document stands separate from the Battery Safety Management Plan (BSMP). The ERP will be in place prior to construction, developed through construction and set out as fixed for operation. It will be written in conjunction with Lincolnshire Fire and Rescue Service and will include the battery OEMs advices/manuals, best practice guidance (NFPA), practical limitations of the site and with best practice around the equipment installed and layout, details of contaminants and how these need to be managed. The commitment to provide an ERP is secured through the Outline Battery Safety Management Plan</p>

WR	Summary	Applicant response
REP2-119	<p>"Applicant needs to take account of the quantity of fire water needed to cool a container containing a runaway battery fire. It will probably take three to four days of continuous cooling to lower the temperature to remove spontaneous ignition. This water will be contaminated and will need to be stored in a bunded area before it can be treated and released. This requirement is missing from the applicants current plans"</p>	<p>As stated within 4.5.3 of the Outline Battery Safety Management Plan [APP-222/7.1] the Scheme's drainage strategy includes a separate system around the BESS with a combination of positive drainage and swales/infiltration basins around the perimeter of the battery system to act as a natural barrier to runoff or collecting runoff into an attenuation / storage lagoon. This will have automatic and manual isolation systems to ensure that any firewater runoff is captured for analysis prior to disposal. This trapped water may then be reused as a potential source of firefighting water. This follows the management plan process as detailed in "Protocol for the disposal of contaminated water and associated wastes at incidents 2018" jointly issued by the Environment Agency, Northern Ireland Environment Agency, Water UK and Chief Fire Officers Association. Further detail on the water requirements for battery fires will be provided by the Applicant at Deadline 4.</p>
RE2-062 (Environment Agency)	<p><i>The Environment Agency has a remit in respect of providing advice on some aspects of the Battery Safety Management Plan and so requests its inclusion as a consultee to Requirement 6. However, as its remit does not cover every aspect of the plan, it would not wish to be an approving authority.</i></p>	<p>Comment noted.</p>
<p>2.12 Climate Change and Carbon Emissions</p>		
<p>REP2-123 REP2-116 REP2-089 REP2-115</p>	<p><i>Concerns regarding whether scheme is truly "green"/carbon neutral. Queries regarding emissions resulting from the manufacturing process for the Solar PV panels and the overall effect on achieving Net Zero targets when emissions in manufacturing are taken into account. For example:</i></p> <p><i>"As China is the obvious supplier of solar apparatus to this scheme, and with recent reports that take into account China's vast coal burning power generation, means that the manufacturing emissions would be as high as 250g CO2/KWh. This is 5x more than previously presented and over 60% of the CO2 from gas fired generation."</i></p>	<p>The Applicant sources the most appropriate materials for the job. Due to the technical complexity of our projects this means that some materials will be sourced from countries outside the UK.</p> <p>We will always consider materials sourcing in context of the needs of the project and the availability of quality materials. Where materials can be sourced locally, at appropriate prices, we will do so.</p> <p>While there will be greenhouse gas emissions is a carbon footprint associated with manufacturing and transportation of the equipment, such as the PV panels and transporting them to site, the carbon emissions avoided</p>

WR	Summary	Applicant response
<p>REP2-079 (7000 Acres)</p>	<p>“The Applicant addresses the scheme impact on climate change in Volume 1, Chapter 6: Climate Change Document Reference: EN010131/APP/3.1. Paragraph 6.10 summarises the estimated emissions. However, no meaningful detail is provided on how the figures were estimated. It would be helpful for the Applicant to provide their detailed calculations so that they can be verified independently. For example, a spreadsheet showing their assumptions and calculations would be helpful to all interested parties.”</p> <p>Further concerns raised about the assumptions made. In particular:</p> <ul style="list-style-type: none"> - How has research carried out in India been applied to solar panels in a Northern European climate. - When considering the CO2 created in the manufacture of the panels, the Applicant has references data from Europe, when the panels are made in China, which relies more heavily on coal fired power stations. - HGVs may not be 100% laden when carrying waste away from the scheme. - No commitment to use components free from SF6. If no commitment is forthcoming, the assessment should include SF6 emissions. - No account is taken of the increased emissions from increased import of cereals and other crops to replace what cannot be grown on the agricultural land taken up by the Scheme. 	<p>over the life of the project is over 8 times the emissions generated in the construction and operation of the Scheme.</p> <p>The methodology along with key assumptions and limitations to calculate lifecycle greenhouse gas emissions from the scheme is presented in Chapter 6: Climate of the EIA [APP-015/3.1].</p> <p>Further clarifications on assumptions used to calculate GHG emissions for the construction and operation of the proposed development are set out below:</p> <p>a. Civils, structures and cables</p> <ul style="list-style-type: none"> i. Embodied carbon emissions associated with civils works, structures and cables have been quantified by multiplying emissions factors from the Inventory of Carbon and Energy (ICE) v3.0 by material volumes presented in a Bill of Material Quantities. This bill is based on Figure 2-4 Indicative Site Layout Plan [APP-033]. <p>b. Panels</p> <ul style="list-style-type: none"> i. An Environmental Product Declaration (EPD) for a representative photovoltaic panel was used to identify a kgCO2e/kwh generated factor (0.00784kgCO2e/kwh). The EPD was based upon manufacture and operational use of the panel in China. The emissions factor presented in the EPD was modified by 28% to account for the difference in yield between China and the location of the proposed development. This resulted in 0.01005 kgCO2e/kwh. ii. The kWh is generated based on minimum yield of 922 kWh/yr/KWp., 2% decline in capacity first year and 0.45% per year after, up to replacement after 30 years. The lift time output is 29.986GWh iii. Panel related emissions have been calculated by multiplying 0.01005 kgCO2e/kWh by 29.986GWh to give panel-related emissions. <p>c. Inverters</p>

WR	Summary	Applicant response
		<p>i. Embodied energy of 210kWh/kW used. Emission factor for manufacturing site used to work out energy-related emissions: European grid factor for PV inverters and China for BESS Inverters. The 210 kWh/kW figure is derived from research carried out in India, but as it is a measure of embodied energy per unit of capacity, it does not rely on any conditions specific to India.</p> <p>d. Battery</p> <p>i. A kgCO₂e/kwh factor of 155 used for China manufacturing site, multiplied by 500,000kWh rating at Gate Burton.</p> <p>e. Transformers</p> <p>i. Transformers were assumed to have an embodied carbon value of 17.36tCO₂e/unit for a 1.6 MVa unit. Units at proposed development are 3.15 MVa, so emission factor per unit scaled up accordingly.</p> <p>f. Maintenance during operation</p> <p>i. Embodied carbon from maintenance activities over the life of the proposed development is based on the following replacement rates.</p> <ul style="list-style-type: none"> • PV Panels 110% • PV Inverter 250% • BESS 250% • Bess Inverter 0% • Transformers 5% <p>How has research carried out in India been applied to solar panels in a Northern European climate.</p> <p>Research carried out in India provided a figure of 210 kWh of embodied energy per kW of capacity for PV and BESS inverters. This energy demand was converted to emissions using representative carbon intensities for the European and Chinese power grids respectively, so the conditions in India do not have a direct bearing on embodied emissions reported.</p>

WR	Summary	Applicant response
		<p>When considering the CO2 created in the manufacture of the panels, the Applicant has references data from Europe, when the panels are made in China, which relies more heavily on coal fired power stations.</p> <p>Paragraph 6.4.5 describes the EPD used to estimate the embodied carbon of PV panels, based on manufacture in China. The specific carbon intensity of the electricity used in the manufacture of PV panels is one of the data points that informs the production of the EPD. For other elements, the Inverters are manufactured in Europe and use an associated emissions factor to reflect the grid emissions there. BESS inverters are supplied from China and use the associated grid emission factor.</p> <p>HGVs may not be 100% laden when carrying waste away from the scheme.</p> <p>An assumption that HGVs would be 100% laden was assumed as no additional data was available. Assuming a 50% laden rate was used this would have only a very marginal impact on overall emissions.</p> <p>No commitment to use components free from SF6. If no commitment is forthcoming, the assessment should include SF6 emissions.</p> <p>As stated in 6.10.15 and 6.4.30, due to the ability of manufacturers to offer SF6-free components and sealed-for-life components with very low leakage rates mean that it is likely to be minimal and therefore scoped out.</p> <p>No account is taken of the increased emissions from increased import of cereals and other crops to replace what cannot be grown on the agricultural land taken up by the Scheme.</p>

WR	Summary	Applicant response
		This is not considered as a direct impact of the project and it is not possible to assess how any lost agricultural productivity would be replaced and whether it would be from import or other local farm land.
REP2-056 WLDC	<i>Whilst the Environmental Statement concludes that there are any significant residual effects on climate change, WLDC consider that embedded carbon and GHG emissions during the construction phase, and the operational phase (maintenance activities) of the scheme are negative impacts that should be given due weight in the decision making process.</i>	The Applicant has undertaken a lifecycle GHG impacts assessment in accordance with the Institute of Environmental Management and Assessment (IEMA) guidance for assessing GHG emissions and evaluating their significance within Environmental Impact Assessment. This assessment assesses the impact of GHG emissions arising over the lifetime of the Scheme on the climate, therefore it is considered that the conclusion presented within Chapter 6: Climate Change [APP-015/3.1] that the overall GHG impact of the Scheme is beneficial and significant is appropriate.
2.13 Land Use and Agricultural Land		
REP2-107 REP2-096 REP2-090	<p>Objects to grade 3b soils being of low productivity. In particular, modern farming techniques have made such soils better quality/more productive. Also, fields often contain a mixture of different agricultural grades. Requests for independent testing of soil grading.</p> <p>Request for the ExA to investigate exactly what food yields the fields generate on the basis that it is believed the land has a higher productivity than the ALC grading shows.</p>	<p>Agricultural land across the Solar and Energy Site has been classified as mostly subgrade 3b “moderate quality” agricultural land, with some subgrade 3a “good quality”. The classification description of subgrade 3b is that it is capable of producing moderate yields of a narrow range of crops or lower yields of a wider range of crops. Subgrade 3b land is not within the definition of the best and most versatile agricultural land. The majority (88%) of the agricultural land in the Solar and Energy Park is in this lower grade category and is considered a location supported by the text in Powering Up Britain.</p> <p>The current land use, or intensity of land use, does not affect the ALC grade. The yields of land are affected by many factors including farm management and the addition of fertilisers, weather variations from season to season etc. The ALC system takes a long-term approach to the potential of the land. Judging land quality by yields in a particular year would not assist, and yield data is excluded from the ALC methodology.</p>
REP2-051 LCC	<i>In addition the loss of arable land of up to 20% within the main development site and up to 50% of the required land for the corridor route which is classed as best and most versatile agricultural land would have a cumulative or defined negative impact that will result in</i>	The Solar Energy Storage Park includes 80.4 ha of land of BMV quality. This represents 12% of the total agricultural land within the Solar and Energy Storage Park.

WR	Summary	Applicant response
	<p><i>the loss of agricultural production in the area generally and/or the permanent loss of agricultural production from mostly medium quality agricultural land.</i></p>	<p>Only an estimated 2 ha of this could be permanently lost as a result of the Scheme.</p> <p>Lincolnshire as a county includes of the order of 566,200 ha of agricultural land, see the "Further Information on Agricultural Land Technical Note" [8.11].</p> <p>These figures were taken from the provisional ALC maps originally from the 1970's, which whilst reprinted have not been updated since. Based on those figures and updated to reflect Natural England's estimate that under the ALC Revised Guidelines (1988) 42% of agricultural land in England is of BMV quality, there is an estimated 402,900 ha of BMV within Lincolnshire county.</p> <p>Defra's Land use Statistics for 2021 record the total farmed area in Lincolnshire as 488,915 ha (Defra, June 2022).</p> <p>The amount of land within the Solar and Energy Storage Park that is of BMV quality is a negligible amount of the county's land resource, including of BMV (where, as analysed in the Cumulative Impact report, an estimated 71.2% of land is of BMV quality).</p> <p>A county-wide assessment is also included which takes account of NSIP and other solar proposals. The collective amount of permanent BMV loss involved in the proposals is less than 8 ha, which is 0.0012% of BMV land in the county.</p> <p>The cable corridor route includes land that is known or is estimated to be of BMV quality, but this will not be lost or downgraded. The working width is a maximum of 25m within the corridor which will include a running track as well as an area for temporary storage of excavated soil. The trench will be up to a maximum of 1.42m wide and 1.6m depth (see the methodology described in the Grid Connection Construction Method Statement [APP-114/3.3]. The BMV status of the land within the corridor will not be altered.</p>

WR	Summary	Applicant response
REP2-056	<p><i>WLDC consider that the applicant has failed to apply any established methodology for the assessment of the impacts upon soils and Best and Most Versatile Land (BMV). The methodology applied is based upon a one borehole per hectare density which is lower than is typically applied. The effect of this inadequacy is that the level of soil detail is insufficient for an Agricultural Land Classification (ALC) assessment and production of a Soil Handling and Management Plan.</i></p> <p><i>This inadequacy results in uncertainty for the decision maker with regard to baseline and subsequent assessed magnitude of impacts. The avoidance of adopting an established methodology results in an underestimation of the effect of the loss of agricultural land than if other methodologies of IEMA or DMRB were applied.</i></p> <p><i>PINS requested in the Scoping Opinion that all affected agricultural land should be subject to an ALC survey. The application however has only carried out desktop assessment for the 13.3 hectares of land within the solar farm itself (and the grid corridor). The assessment methodology applied is non-compliant with the requirements of the 'competent authority'.</i></p> <p><i>It is also not clear to WLDC why the applicant has separated grade 3a land from the ALC Assessment (ES Vol.3, Appendix 12-C). National and local policy is clear in that all grade 3a land is to be treated as BMV.</i></p> <p><i>Furthermore, the application provides an inadequate assessment of the impact on individual farms and nor does it consider the displacement of tenants. The Agricultural Circumstances Report also does not consider the likelihood of the socio-economic impact on the land use and affected farm holdings.</i></p> <p><i>The Scheme would conflict with the Policy S67 of the Local Plan. As set out above, whilst the Applicant has provided an ALC report does not follow an established methodology. This puts the assessment into question and therefore it is difficult to determine whether the assessment has properly assessed the benefits and/or sustainability considerations of the solar farm and that this outweighs the need to protect WLDC's BMV.</i></p>	<p>ALC Methodology and production of Soil Management Plan</p> <p>The Applicant disagrees that the assessment of impacts on agricultural land arising from the Scheme set out within ES Chapter 12 [APP-021/3.1] do not follow an established methodology. The approach was informed by Natural England's guidance note Technical Information Note 049 -Agricultural Land Classification. The thresholds for the magnitude of impact adopted in the assessment were based on a threshold of the permanent change of 20ha of BMV agricultural land. As this is the area of BMV change that triggers a requirement to consult with Natural England, it implies that this is also the point at which the change is no longer considered to be 'not significant'. This approach was agreed with Natural England on another DCO scheme (Longfield) and was therefore considered appropriate to use in the assessment of impacts on agricultural land as presented in the ES.</p> <p>The Applicant disagrees that there is insufficient detail for an ALC assessment and production of a Soil Handling Management Plan. A semi-detailed soil survey was carried out in accordance with the MAFF (1988) guidelines which is the current methodology for ALC within the Solar and Energy Storage Park. Some 307 auger samples were taken over the 652 ha site. The density of assessment was increased in areas where there was BMV. As it is common ground that ALC grade will not be changed, this provides a suitable level of detail. As per subsequent discussions with Natural England (see revised Statement of Common Ground [REP-009 to 010/4.3C]) soil sampling will also be undertaken within the grid connection corridor to inform the Soil Management Plan for that work. This commitment is also included within the updated Framework CEMP that was submitted at Deadline 1 [REP-026/7.3].</p> <p>Of the 13.3 ha of land within the solar farm itself that was estimated, 6.8 ha was estimated as BMV. As stated within paragraph 12.7.8 of ES Chapter 12 [APP-160/3.1] the area of estimated BMV covers an area that is not proposed to be used for solar panels, battery storage or the substation so certainty over the ALC grade was not considered necessary to assess the impact of the Scheme.</p>

WR	Summary	Applicant response
	<p><i>The loss of 80.4 ha BMV required during operation will also have a prolonged impact on the tenant farmers on the application site who are responsible for food production which not only provides local employment, but also improves food security on a national scale. The loss of this land for 60 years will also result in the loss of agricultural income for local farms and farmers who have been producing for multiple generations. It is likely a 60 year hiatus will end this practice and lead to a loss of knowledge in farming in West Lindsey. WLDC is concerned as to who will be available in the year 2088, when the scheme is eventually decommissioned, to simply pick up and begin farming the land once again – this is not made clear within the submission.</i></p> <p><i>The above inadequacies result in significant uncertainties regarding the likely impacts upon agricultural land and the socio-economic of the agricultural sector. These matters should be afforded significant weight in the decision making process and WLDC are therefore unsatisfied with the approach taken and question the reported impacts.</i></p> <p><i>WLDC maintain an objection to the project on these grounds and contend that these inadequacies require addressing to enable an assessment against policy to inform decision making.</i></p>	<p>As per subsequent discussions with Natural England (see Statement of Common Ground submitted at Deadline 1) soil sampling will be undertaken within the grid connection corridor. The cable corridor route includes land that is known or is estimated to be of BMV quality, but this will not be lost or downgraded. The working width is a maximum of 25m within the corridor which will include a running track as well as an area for temporary storage of excavated soil. The trench will be up to a maximum of 1.42m wide and 1.6m depth (see the methodology described in the Grid Connection Construction Method Statement [APP-114/3.3]. The BMV status of the land within the corridor will not be altered.</p> <p>Grade 3a Land</p> <p>Subgrade 3a "good" quality land falls within the definition of BMV. This is recognised in paragraph 12.7.7 of Chapter 12 of the ES [APP-021/3.1]. The ES assumes 80.4 ha of BMV within the Solar and Energy Storage Park. The 6.8 ha of estimated subgrade 3a is not proposed for solar panels (Chapter 12 para 12.7.8 refers).</p> <p>Impact on Tenant Farmers</p> <p>There are four farms within the Solar and Energy Storage Park. All farms within the Solar and Energy Storage Park (SESP) are owner-occupied. No tenant farmers are being displaced. The farm size and area within the Solar Energy Storage Park, and as a proportion of the area farmed, is shown in the table below.</p>

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Farm	Farm Type	Area Farmed (ha)	Area in SESP	Proportion in SESP
1	Cereals and break crops, agri-environmental	360	134	37%
2	Cereals, linseed, beans, some grassland (let for grazing)	2,020	387	19%
3	Miscanthus, cut for biofuel	68	67	98%
4	Cereals, oilseed rape, maize, beans, oats	365	63	17%

The continued viability of farms 1, 2 and 4, who have entered the proposals voluntarily, is not prejudiced by the Scheme. Farm 3 is a block of land in long-term energy crop use and managed by contractors, which will cease.

Agricultural land will not be lost on a permanent basis, except for potentially the estimated 2 ha for the substation and planting (see ES **Chapter 12 para 12.7.10 [APP-021/3.1]**). This is a worst case scenario as it is possible that the BESS and substation will also be removed in decommissioning.

The majority of the site is subgrade 3b "moderate" quality land. Within the Solar and Energy and Storage Park a total of 80.4 ha is subgrade 3a, which is Best and Most Versatile (BMV). This amounts to 11% of the site. The majority of the Solar and Energy Storage Park is subgrade 3b "moderate" quality land.

Decommissioning of the Scheme after a period of 60 years is secured via Requirement 19 of the draft DCO. At the end of the Scheme lifetime, the Scheme would be decommissioned and removal of the PV panels and other infrastructure would take place in accordance with the Framework DEMP secured via Requirement 19, thereby returning the land to arable use. The **Outline Soil Management Plan [REP-031/7.12]**, secured via Requirement 17 sets out the reinstatement and restoration controls including the

WR	Summary	Applicant response
		<p>commitment that all soils will be returned to the landowner in like for like condition (see “Soil Restoration (c)” of that plan).</p> <p>The agricultural employment from the current arable, energy crop and biodiversity land management enterprises will change.</p> <p>Should the site be grazed by sheep during the operational phase, there will be agricultural employment during the operational phase from the management of sheep and grassland.</p> <p>What agricultural enterprises will be selected at the end of decommissioning will be influenced by a great number of factors, not least how well we have contained climate change. Continued land management, for agriculture, is the expected future land use.</p>
<p>2.14 Local Economy and Community impacts and benefits</p>		
<p>REP-046</p>	<p>Queries what community benefits are being considered by the Applicant.</p>	<p>Community benefits are not relevant and important matters in determining DCO applications and consequently are not a focus of the Application documents. Notwithstanding this all of the Applicant’s group companies’ projects come with a community benefit.</p> <p>The Applicant has held meetings with various Parish Councils and also Lincolnshire and Nottinghamshire Community Foundations to explore how such benefit could be administered and what initiatives it might support. We feel this should be a decision for local communities and we are keen to continue to facilitate the discussions around this</p>
<p>REP2-105</p>	<p>Concerns regarding isolation of villages and outlying communities.</p>	<p>The effects of the Scheme on human health are presented in Chapter 14 of the ES [APP-023/3.1]. Table 14-9 considers the impact of the Scheme on Social Cohesion and Lifetime Neighbourhoods. This states that there may be increased traffic on roads bordering the Site, to transport construction related materials, however, even as a worst case scenario, this is not expected to lead to severance of communities and a number of alternative local routes</p>

WR	Summary	Applicant response
		<p>are available. Chapter 13: Transport and Access [APP-022/3.1] identifies that Kexby Lane is likely to be experience the largest impact, but does not result in a significant effect (assessed as minor adverse). In terms of employment generated transport, a minibus to transfer construction staff to/from the Site will be provided to reduce traffic in the surrounding villages, which will mitigate the demands on the local road network.</p> <p>The impact on PRowS within the local area is also considered. This states that a limited number of temporary PRowS diversions surrounding the Grid Connection Corridor may be impacted whilst cabling is installed. However, as set out in the PRowS Management Plan, each diversion will be clearly marked out and agreed with the local authority prior to construction. As these routes also form part of a wider network, alternative PRowS routes are available in the vicinity. A new communications strategy will also be developed, including regular meetings with contractors to address local issues around walking and cycling and to relay information on restrictions and requirements. This will be an opportunity for local residents of the surrounding communities to be included with the planning of diversions associated with Scheme and to ensure that local villages and communities do not feel isolated. Therefore, it is judged in Chapter 14, the Scheme will have a neutral impact on social cohesion and lifetime neighbourhoods.</p> <p>There are also employment related benefits associated with the construction phase, which has a positive impact on human health and wellbeing. As also set out in Table 14-8 and in Chapter 12: Socio-Economics and Land Use, the Scheme is anticipated to create 363 job opportunities per annum, 207 of which are calculated to be taken up by residents within a 60 minute travel area of the Site. These job opportunities could potentially be taken by local residents of the surrounding settlements, which would contribute to improving self esteem.</p> <p>During operation, all existing PRowS routes will re-open, including those temporarily diverted during construction. The Scheme is also expected to attract low levels of vehicle trips during operation (up to 15 arrivals and departures per day), which is unlikely to impact negatively on the surrounding</p>

WR	Summary	Applicant response
		<p>communities. Therefore a neutral effect on social cohesion and lifetime neighbourhoods during operation has also been concluded. The impact during decommissioning is anticipated to be similar to that of construction, and so a neutral effect on social cohesion and lifetime neighbourhoods has also been concluded for this phase of the Scheme.</p>
<p>REP2-094</p>	<p><i>Table 14-7 in ES Chapter 14: Human Health and Wellbeing [EN010131/APP/3.1] regarding Accessibility and Active Travel. Regarding the question ‘Does the proposal prioritise and encourage walking?’, how can the effects on the promotion of walking be deemed negligible? Willingham Road, linking Gate Burton to Willingham, which is one of the primary construction routes, is a popular walking, running, cycling and horse-riding route. Part of it has been on the route of the annual Stow community bike ride for many years. It is currently a single carriageway road with passing places, bordered along the majority of its length by hedges. Once it becomes a construction route for the project it will no longer be possible to use it in that way. Therefore the proposal has a significant effect on the health, wellbeing and exercise opportunities of local residents.</i></p>	<p>The majority of construction vehicle trips will travel to/ from the main site access on the A156 Gainsborough Road. The Framework CTMP (Appendix 13-E [REP2-020-021/3.3]) includes an HGV routing plan which shows that local roads and nearby villages will be avoided where possible. The access on the Willingham to Marton minor road was only proposed to be used during the operational phase. The Applicant intends to remove this access from the scheme at Deadline 2 in response to comments raised, to reduce the environmental impacts of the access and enable advance planting in this area. six weeks, with diversions provided, and therefore are not considered to have a significant or long-term impact on use of these routes for active travel.</p> <p>During the operational phase, no routes will be closed, this will ensure that the recreational benefits of active travel on health including mental health are retained which translates into a positive health impact including on both physical and mental health.</p>
<p>REP2-094</p>	<p><i>Table 12-22 in ES Chapter 12: Socio-economics and Land Use [EN01031/APP/3.1] showing Accommodation Capacity within 30 minute drive time radius of Site.</i></p> <p><i>“para 12.10.3 concludes that there is ‘no effect’ on the hotel, B & B and inns accommodation sector by the workers on this proposal. The cumulative effect is looked at in 12.13.6 and 12.13.7 – why are only WB 2 & 3 and Cottam 1 added into the figures? Other Cottam sectors are within a 30 minute drive, as is Tillbridge Solar.. Also the capacity considered in the cumulative effect paras is rather disingenuously only that within a 60 minute drive. If you look at the cumulative effect of all of the local proposals and the accommodation within a 30 min drive there would be a different conclusion.... If a local is holding a wedding or</i></p>	<p>Whilst it is correct that Tillbridge solar represents an additional scheme to that considered in the assessment of cumulative impacts on visitor accommodation within ES Chapter 12 [APP-160/3.1], the assessment accounted for the appropriate other plans and projects at the time of submission of the ES. It is correct that the 60 minute drive time includes the urban areas referenced and it is likely that preferences for accommodation, from within this sector, will be larger hotels that are more concentrated in such areas.</p> <p>The likelihood that each scheme would use accommodation further afield than WLDC area is high. Each DCO Solar scheme has a different footprint/red line boundary with the area covered by the 60-minute drive time differing accordingly. For example, for Tillbridge Solar, which is expected to</p>

WR	Summary	Applicant response
	<p><i>funeral or other social occasion – will any of the guests be able to find, let alone afford, any local overnight accommodation?”</i></p>	<p>have the largest construction workforce of the schemes, areas such as Kingston-upon-Hull and Beverley would fall within 60 minutes of that scheme but not within 60 minutes of Gate Burton. The accommodation within this area i.e. over 60 minutes away within these urban areas could therefore cater for a notable proportion of the demand from Tillbridge. Other such areas are likely to be applicable for the other schemes and could cater for a commensurate portion of the cumulative demand that this worst-case assessment is assuming must come from within 60 minute drive time of Gate Burton.</p> <p>Further, it is stressed that the assessment provides a very worst-case assessment, as:</p> <ol style="list-style-type: none"> 1. it assumes that the peak level of employment might occur in any month when in reality this will vary significantly and will generally be considerably less than the peak level. It is unlikely that the peak level of employment for all schemes will coincide such that the worst case scenario arises. 2. it only takes into consideration the hotel, bed and breakfast and inns accommodation sector rather than alternative accommodations (such as Airbnb, serviced apartments, holiday parks etc.) that could be used to accommodate a portion of the demand.
<p>REP2-094</p>	<p><i>Has the Applicant done any research into the effects on the local postal delivery and collection services? Does the Applicant know where all the post boxes are and the routes the collection vans take? Whilst the effects of this proposal in isolation may be limited, again the cumulative effect needs to be considered.</i></p>	<p>Construction traffic has been assessed in Chapter 13: Transport and Access [APP-022/3.1] which concludes no significant effects as a result of the Scheme, including with respect to congestion and driver delay.</p> <p>The four developers are working closely together to identify further ways to collaborate and reduce impacts on communities and the environment. Progress on this is reported in the Interrelationships Report submitted at Deadline 1 [REP-033/8.2] and will be updated throughout the Examination.</p> <p>The Cumulative Transport and Access Technical Note which is appended to the Interrelationships with Nationally Significant Infrastructure Projects Report [REP-033/8.2] submitted at Deadline 1 also modelled the Gate Burton, West Burton, Cottam and Tillbridge projects under a worse case peak</p>

WR	Summary	Applicant response
		<p>construction scenario. This assessment provided an updated assessment due to the availability of additional information on the Cottam, West Burton and Tillbridge projects since production of the ES. Increased vehicle numbers on all access routes fell well below the IEMA threshold 30% increase in vehicle numbers with the residual cumulative effect identified as negligible.</p>
<p>REP2-126 (Woodside Pet Care)</p>	<p><i>"I wish to inform you that I still have had no further correspondence from Gate Burton Energy Park on the impacts on my business. As I have previously advised, I have great concern over how this Solar farm will impact my business, adjoining the proposed land. To reiterate, if this development was granted to the land next to my business, my licencing responsibilities would not be adhered to, and would be in breach of my licencing agreement. Animal welfare is the number one issue. Noise levels and vibration during construction, which would cause stress to the animals close by, then after the months of construction would be the low level electromagnetic field noise for animals with sensitive hearing- what will be the effects on this to the animals? The world health organisation recommend solar farms be at least 2 kilometres from human residence, not alone animals with extra sensitive hearing. And also countryside views lost, which is a big factor for owners wanting to board their animals in our care. Gate Burton Energy Park have not listened to my concerns at all, and I have asked repeated times for answers to my questions, and who will be liable for these licencing breaches, with still no answer. They are not bothered at all about how this will effect my business."</i></p>	<p>The Applicant responded to Woodside Pet Care's concerns in its Responses to Relevant Representations submitted at Deadline 1 (18 July) [APP/8.1]. Please refer to the responses previously provided.</p> <p>From the previous representation submitted by Woodside Pet Care, the Applicant understands that concerns relates to excessive noise. In terms of the distance of the Scheme to the property on Kexby Lane, as part of the design development process, Figure 2-4 Indicative Site Layout [APP-033/3.2] has been amended to remove panels from homes on the north side of Kexby Lane and further landscaping proposed in their place to reduce the environmental impact (including noise impact). No significant effects from noise have been identified.</p>
<p>REP2-085</p>	<p>General concerns regarding impact on local businesses.</p>	<p>An assessment of the impact of the Scheme on local business and local employment including agricultural jobs is presented within Chapter 12: Socio-economics and Land Use [APP-021/3.1]</p> <p>The Socio-economics and Land Use assessment ES Chapter 12 [APP-021/3.1] assessed the potential for in-combination amenity impacts on residents, businesses and users of community facilities. An amenity effect could occur if two or more topics (noise, vibration, visual, traffic) assess significant adverse residual effects on a receptor or group of receptors occurring at the same time. The assessment concluded that no significant</p>

WR	Summary	Applicant response
		adverse effects during construction would arise as no receptors would experience more than one significant adverse effect at the same time.
REP2-051 LCC	<i>That if the Secretary of State grants the Development Consent Order a comprehensive and appropriate package of Community Benefits is secured and delivered to compensate for the identified negative impacts from the proposed development would cause the communities affected by this project.</i>	The Applicant has developed an Outline Skills, Supply Chain and Employment Plan [APP-228/7.7] which is secured by Requirement 18 of the draft DCO and aims to identify and maximise opportunities for local communities.
REP2-056 WLDC	<p><i>The proposed scheme will have a significant impact upon the communities of West Lindsey that will have a negative impact upon their daily lives and mental anguish. These impacts will be experienced during the construction and operation of the gate Burton scheme and will be materially experienced cumulatively with other NSIP project proposed in the locality.</i></p> <p><i>The settlement character and nature of community life in West Lindsey is strong and has been embedded over hundreds of years. The area is characterised by large areas of expansive agricultural land and associated economic activity, with settlements interspersed within this cultural landscape. Communities are close knit, with the largely rural highway network servicing the link settlements with each other and with the major towns such as Gainsborough.</i></p> <p><i>As a consequence of the geography of the area, communities travel throughout the area using the network of rural and major highways to carry daily trips for work or recreational purposes. This also extends to the use of local highways for walking and cycling activities, which are an integral feature of life in the district. Communities are particularly dependent upon the use of adopted highways for recreation and leisure purposes. Due to the intensive agricultural character of the district, public rights of way across field are limited. This results in communities using highways for recreational activities with walkers, dog walkers, cyclists and horse riders all sharing roads with vehicular traffic. WLDC notes that it is assumed that all of the PV Panels will require replacement once during the Scheme's design life, with a further 10% requiring replacement to cover equipment failures, at a constant rate</i></p>	<p>Safe access will be maintained along and across existing Public Rights of Way (PRoW) during the construction, operation and decommissioning phases of the Scheme. There will be no PRoW closures and a limited number of temporary PRoW diversions will be implemented around the Grid Connection Corridor works area when the cables are installed. Further details are set out within the Outline PRoW Management Plan [APP-229/7.8].</p> <p>Effects on views from PRoW as a result of construction, operation and decommissioning of the Scheme are set out in Chapter 10: Landscape and Visual Amenity [APP-019/3.1]. Adverse visual effects during construction and decommissioning (some of which are significant) would be experienced from PRoW proximal to the Solar and Energy Storage Park and Grid Connection Route. During Operation once new and strengthened hedgerows and tree and shrub belt planting has reached semi-maturity, this will screen or filter the Scheme in the majority of views; however a small number of significant effects remain at Year 15 for the Solar and Energy Storage Park. Views from PRoWs along and across the Grid Connection Corridor and the wider PRoW network will experience no significant effects during operation.</p> <p>Local Road Network</p> <p>The majority of construction vehicle trips will travel to/ from the main site access on the A156 Gainsborough Road to access the primary construction compound using solely the A-road and B-road network. Further details are contained within Chapter 13: Transport and Access [APP-022/3.1]. The Framework CTMP (Appendix 13-E [REP2-020-021/3.3]) includes an HGV routing plan which shows that local roads and nearby villages will be avoided</p>

WR	Summary	Applicant response
	<p><i>throughout the 60-year project life. This means that there will be continued works throughout the scheme which is likely to cause disruption to the local residents.</i></p>	<p>where possible, as well as mitigation to avoid and/or reduce impacts, relating to construction traffic including the delivery of materials during construction.</p> <p>PV Panel Replacement As stated within Chapter 2: The Scheme [APP-011/3.1] during the operational phase, activity on the Solar and Energy Storage Park will be limited and would be restricted principally to vegetation management, equipment maintenance and servicing, replacement of components, periodic fence inspection, and monitoring to ensure the continued effective operation of the Scheme.</p> <p>It is considered that all panels would need to be replaced once during the Scheme's lifetime as this calculation is based on the design life of the solar panels (30 years) rather than the warranty period (25 years). It is noted that some solar panels will need to be replaced more frequently due to equipment failures and therefore it has been assumed that 10% of solar panels will be replaced at a constant rate throughout the 60- year project life.</p> <p>This replacement rate is based on similar schemes and therefore is considered to be a worst-case scenario.</p>
<p>REP2-056 WLDC</p>	<p><i>The visitor economy is a significant and growing sector within West Lindsey. The area is an attractive, peaceful rural area which combines an outstanding natural environment with historic villages in close proximity to the City of Lincoln. Lincolnshire's visitor economy is worth £2.4bn (STEAM data Lincolnshire County Council), with the sector supporting 30,000 jobs and a far reaching supply chain across the county. Food and drink spending alone generates £44m into the local economy, with recreation adding £18m and retail contributing £59m. The visitor economy is a significant sector for people's livelihoods. The impact of Covid lockdowns has been severe. Lincolnshire has experienced a 52% reduction in all tourism spending (STEAM data 2020), with full time jobs being reduced by half from 2,500 jobs to just over 1,200. There has been a 52% reduction in visitor numbers and a 50% reduction on the number of visitor days. Food and drink spend feel</i></p>	<p>The Applicant's EIA Scoping Report submitted to PINS contained no specific reference to an assessment of effects on tourism as no specific receptors, such as visitor attractions, had been identified within the defined study areas to justify such an assessment being needed. The Scoping Opinion response received from PINS also did not request that such an assessment was required. However, Chapter 10: Landscape and Visual Amenity [APP-019/3.1] of the Environmental Statement did assess the impact on visitor views in the vicinity of the Scheme and the loss of long-distance views as relevant. This includes from PRowWs which provide the main opportunity for recreation in this otherwise predominantly agricultural area. Accordingly, Chapter 12: Socio-economics and Land Use of the Environmental Statement [APP-021/3.1] also assessed impacts on PRowW users which could include visitors to the area. There is considered to be one (tourism) receptor within 2km of the Site, the Landmark Trust Chateau approximately 160m away. Chapter 12:</p>

WR	Summary	Applicant response
	<p><i>from £44m to £21m (reduction of £13m) and retail spend fell from £59m to £29m 9a reduction of £20m). Recreational spend reduced by £10m to £8m. Overall, local tourism businesses have experienced a reduction of over £100m from their revenue.</i></p> <p><i>Reflective of the defining agricultural character and culture of West Lindsey, one of the key tourist events is the Lincolnshire Show, held annually at the Lincolnshire Showground. The show is a flagship event for the area, with over 60,000 visitors and 500 exhibitors each year. The success of the Lincolnshire Show is strongly relies upon the local tourism sector accommodating the visitor demand it creates.</i></p> <p><i>Forecasts have predicted that it will take a timescale of up to 2025/26 for businesses in the sector to recover to pre-Covid levels, based on the assumption that no material externalities will compromise this recovery.</i></p> <p><i>The Gate Burton development will have an significant negative impact on the local tourism sector, causing damage to its image and recovery. The construction phase will result in disruption and a degradation to the environmental attributes of the West Lindsey District, which will materially reduce its attractiveness as a destination for visitors. Traffic delays will affect the ability of visitors to travel to and within the district, and construction traffic will conflict with the recreational activities both in terms of use of rural road networks and the attractiveness of the landscape and environment (noise, disturbance, visual impacts etc).</i></p> <p><i>The Gate Burton application predicts that worker accommodation requirements would see 86% of the current supply occupied during construction for Gate Burton alone. If realised, the impact on local accommodation to meet and grow visitor demand will be significantly harmed. Following the completion of the construction phase, it will be a significant challenge for the sector to recover and re-commence recovery to pre-Covid levels. The timescales for construction of at least 5 years for the Gate Burton scheme, and potentially more should cumulative developments also come forward, would result in the attractiveness of the area as a visitor destination will be degraded for a significant amount time, from which it would not recover quickly.</i></p>	<p>Socio-economics and Land Use assesses that taking into account the residual effect assessment results of the air quality, noise, traffic and visual assessments, there are no residents, businesses or community facilities that would likely experience a significant effect on their amenity during construction from effects acting in combination. All other receptors are over 2km away, beyond the study area, and would not experience effects in respect of their amenity and therefore tourism.</p> <p>On this basis, potential effects on tourists were assessed in the Environmental Statement in so much that effects on views and use of PRowS and on amenity of businesses and community facilities were set out which comprise the main matters of potential impact. The assessment concluded that there would be no significant effects.</p> <p>Furthermore, a study by The South West Research Company on “the impact of renewable energy farms on visitors to Cornwall” (2013) found that renewable energy parks (solar and wind) and no negative impact on tourism and may even have a positive impact as sustainability becomes an element of considerations for tourists when opting for a destination. The study found that just 6% of visitors to Cornwall had a negative attitude towards renewable energy parks. The study also found that only 2% of visitors are less likely to visit the county again in the future as a result of the presence of wind and solar farms. However, 4% of visitors are more likely to visit which is likely to be as a result of those that find such developments attractive and, more importantly, those that consider the county to be a more positive place as a result of the presence of renewable energy farms and its support for the environmental causes</p>

WR	Summary	Applicant response
	<p><i>During the operational phase of the Gate Burton project, the harm to the landscape will impact upon the reasons people visit West Lindsey, degrading their experience of the area, and having a consequential impact upon visitor numbers and the contribution the sector makes to the local economy.</i></p> <p><i>WLDC hold significant concerns about the short and long-term harm that the Gate Burton scheme will have on the tourism sector, and these impacts must be given significant weight in the planning balance.</i></p>	
<p>2.15 Public Health and Wellbeing</p>		
<p>REP-048 REP2-116</p>	<p>States further research should be undertaken into electromagnetic sensitivity and potential adverse impacts.</p>	<p>The potential harmful effects of electric and magnetic fields (EMFs) on health is an area that has been extensively researched for over four decades with many thousands of papers published on the issue. This research has not established any health effects at levels below the national guidelines¹ which have been applied to the development of this Scheme. These national guidelines and standards have been developed considering the body of scientific research which is reviewed by independent authoritative scientific organisations such as the World Health Organisation (WHO).</p> <p>The 400kV grid connection circuit is proposed to be underground and is anticipated to be buried to depth of at least 0.9m. Therefore, the potential sources of EMF that might act in-combination with other sources are removed.</p> <p>As the Applicant has ensured that all of the proposed cables comply with the policies set by Government on the advice of their independent advisors, this ensures that health concerns re properly and adequately addressed. It is on this basis that it can be confirmed that the Scheme would have no significant adverse impact in respect of human health arising from EMF.</p>
<p>REP2-113</p>	<p>Concerns regarding effect of solar panels on human health particularly whether carcinogen outputs from the facilities or other adverse effects on areas they are installed.</p>	<p>The effects of the Scheme on human health are presented in Chapter 14 of the ES [APP-023/3.1]. This does not include consideration of the effect of solar panels on physical health, which is accepted by regulators and health</p>

¹ <https://www.icnirp.org/en/activities/news/news-article/ef-guidelines-2020-published.html>

WR	Summary	Applicant response
		<p>industry to be indiscernible from background levels – i.e., nil or negligible impact.</p> <p>There is no carcinogen risk associated with proximity to solar panels, which are permitted on residential homes and within gardens. The risk from electromagnetic field from high voltage current reduces rapidly with distance and the industry reference levels and permitted levels provided by the International Commission on Non-Ionizing Radiation Protection (ICNIRP), and incorporated into UK guidance for the protection of human health, are met even on top of high voltage cables. The electromagnetic field reduces rapidly with distance and is similar to background levels beyond 10m from a high voltage installation.</p> <p>The solar panels are set back from areas where humans will be present and secured by the Outline Design Principles [REP2-008]. The BESS and onsite substation is at least 600m from any residential properties. These distances are more than adequate to protect human health.</p>
REP2-090	Concerns regarding increase in crime as a result of criminals stealing solar equipment etc.	CCTV cameras and security fencing of 3m in height are included within the Scheme design to protect the site from unauthorised access, including to address concerns other respondents have had over crime. Planting has been incorporated within the Outline Landscape Masterplan to screen the fencing to reduce the landscape and visual impact. The planting proposed as part of the Scheme is shown on the Outline Landscape Masterplan and associated management regime in the Outline Landscape and Ecology Management Plan [APP-231/7.10]
REP2-056 WLDC	<p><i>The proposed scheme, on its own and in conjunction with other proposed solar projects, will have an adverse impact upon the culture, mental health, character and way in which local communities engage with, and live within, the district.</i></p> <p><i>Settlements and the communities that live within in them have a strong connection with agricultural culture of the area, which is reflected in its landscape, land use and the way in which people live.</i></p> <p><i>The landscape itself is strongly characterised by large open fields for intense agricultural use. The removal of this land use to be replaced by large scale utilitarian photovoltaic solar arrays and their associated</i></p>	<p>Landscape Character</p> <p>ES Volume 1, Chapter 10: Landscape and Visual Amenity [APP-019/3.1] assesses and describes the effects of the Scheme on the landscape character and the visual amenity. Section 10.11 Residual Effects and Conclusions, states the remaining effects following the establishment of proposed landscape mitigation measures. The assessment concludes that there will be direct and significant alterations to the local landscape character, where the Gate Burton Energy Park will be located and indirectly on sections of adjoining local landscape character. However, the assessment concludes</p>

WR	Summary	Applicant response
	<p><i>development, will result the direct removal of this cultural land use character, significantly harming the way in which communities perceive and relate to the place in which they live. This significant change for a period of over half a century will inevitably degrade the character and culture of the West Lindsey District and negatively impact the connection communities have with it.</i></p> <p><i>The proliferation of construction traffic for 5 years or more will discourage the use of rural highways for recreation use, resulting in a further negative impact upon the wellbeing and mental health of local residents and people using the district for leisure purposes.</i></p>	<p>that the wider landscape character, including at regional or county level, will not be affected.</p> <p>The Scheme design has focussed on mitigating by design as a first principle, by sequentially locating infrastructure behind natural screening barriers and therefore reducing the need for screening. Where necessary, screening has been targeted to reinforce existing vegetation, followed by additional planting in selected locations. In addition, areas of advanced planting are being considered in a number of locations to ensure planting is effective at screening at an early stage in the project. Further information is available within ES Volume 1, Chapter 10: Landscape and Visual Amenity [APP-019/3.1]</p> <p>Mental Health</p> <p>Chapter 14: Human Health [APP-023/3.1] paragraph 14.8.1 outlines that the Scheme has the potential to affect Human Health and Wellbeing (either positively or negatively), during construction, operation, decommissioning, in the following ways:</p> <ul style="list-style-type: none"> • Access to Healthcare Services and Other Social Infrastructure; • Air Quality, Noise and Neighbourhood Amenity; • Accessibility and Active Travel; • Access to Work and Training; and • Social Cohesion and Lifetime Neighbourhoods. <p>As stated in paragraph 14.9.1 <i>“Embedded mitigation measures are incorporated and secured into the Scheme as set out in the respective ES chapters to reduce other construction, operational and decommissioning effects (such as noise and vibration, air quality, transport and access and socio-economics and land use) which in turn will mitigate the effects on the local community and existing facilities from a Human Health and Wellbeing perspective.”</i> This includes in respect of potential impacts on mental health.</p> <p>In terms of disruption during the construction and operational phase and in recognition of the potential for impacts on mental health that could arise from activities on-site and surroundings, there are measures set out in the</p>

WR	Summary	Applicant response
		<p>Framework CEMP [APP-224/7.3], Framework OEMP [APP-225/7.4] and Framework DEMP [APP-226/7.5] (and subsequent versions) to reduce or avoid impacts during the construction and operational phase, respectively</p> <p>Recreation of Highways Safe access will be maintained along and across existing Public Rights of Way (PRoW) during the construction, operation and decommissioning phases of the Scheme. There will be no PRoW closures and a limited number of temporary PRoW diversions will be implemented around the Grid Connection Corridor works area when the cables are installed. Further details are set out within the Outline PRoW Management Plan [APP-229/7.8].</p> <p>Effects on views from PRoW as a result of construction, operation and decommissioning of the Scheme are set out in Chapter 10: Landscape and Visual Amenity [APP-019/3.1]. Adverse visual effects during construction and decommissioning (some of which are significant) would be experienced from PRoW proximal to the Solar and Energy Storage Park and Grid Connection Route. During Operation once new and strengthened hedgerows and tree and shrub belt planting has reached semi-maturity, this will screen or filter the Scheme in the majority of views; however a small number of significant effects remain at Year 15 for the Solar and Energy Storage Park. Views from PRoWs along and across the Grid Connection Corridor and the wider PRoW network will experience no significant effects during operation</p>
<p>2.16 Ecology and Biodiversity</p>		
<p>REP-048</p>	<p>States the Scheme prevents the local authorities from committing to and implementing a viable nature recovery strategy.</p>	<p>The Scheme has been designed to align and support national and local policies on biodiversity, as set out in Environmental Statement Appendix - Chapter 8-A Ecology Legislation and Policy [APP-125/3.3] and the OLEMP [APP-231/7.10]. The Scheme has embedded new habitats in line with national and local priorities, which will establish more robust and resilient ecological connections across the Scheme. This new green infrastructure not only delivers new habitats in line with nature recovery strategies, but also</p>

WR	Summary	Applicant response
		<p>assists with coherently supporting and linking up nature recovery strategies in the wider landscape.</p>
<p>REP2-116</p>	<p><i>Chapter 8: Ecology and Nature Conservation (APP-017/3/1) states that 'deer fencing' 3m in height will include gaps in the base to allow mammals, including small deer, badger, etc to move across the Scheme. The smallest deer in the Lincolnshire area are Muntjac which stand 15 – 25 inches at the shoulder and are quite stocky. The adult male badger is a stocky animal reaching 25lbs and more. The size of gap needed to allow these animals to move freely without harm or hindrance through the space would probably also enable a small young person/child to enter the compound. In ensuring the safety of wildlife how can you also prevent a young person gaining access through such a gap as you make no mention of the gap size in your response to a relevant representation. What size gap is being proposed in the fencing for the larger wildlife ?</i></p>	<p>The size of mammal passes in the base of fencing will typically be a minimum of 30cm in height. This is sufficient to allow up to medium sized mammals, e.g., Badger to continue to move freely across the Scheme.</p>
<p>REP2-116 REP2-101 REP2-090</p>	<p>Concerns that security fencing will impact on ability of wildlife to roam, particularly deer.</p> <p>Concerns about the effect on wildlife routes more generally.</p>	<p>The Outline Landscape and Ecology Management Plan (OLEMP) [APP-231/7.10] outlines the landscape and ecology impact avoidance measures that would be implemented prior to, and during, construction of the Scheme, as well as the habitat restoration, enhancement, management and monitoring measures to be implemented once the Scheme is operational. There will be no loss of established wildlife corridors, nor fragmentation of habitats, as existing corridors used by wildlife, e.g., hedgerows, field margins, etc., will be retained and in many instances enhanced, through additional planting and strengthening of hedgerows, areas of scrub and broad grass margins. The management of these habitats will also seek to maximise their biodiversity value. This will increase the connectivity between habitats areas for wildlife and create broader and more resilient linkages across the landscape.</p> <p>As stated within Chapter 8: Ecology and Nature Conservation [APP-017/3.1] the fence will be a 'deer fence', up to 3m in height and will include gaps in the base to allow mammals, including small deer, badger, brown hare and hedgehog, to continue to move across the Scheme. As such, there will</p>

WR	Summary	Applicant response
		<p>be no reduced ability for mammal species to continue to move around the landscape, nor risk of becoming ‘trapped’ within fenced areas. Existing areas of woodland and many of the hedgerows will sit outside of the security fencing, ensuring that larger mammals such as deer, can continue to move across the landscape.</p>
REP2-116	<p>Concerns that brown hare will be put at risk, because they prefer mixed arable and livestock farms and mosaic of fields at different stages of crop and grass growth.</p>	<p>A detailed assessment of the potential impacts of the Scheme on biodiversity are set out in section 8.10 of Chapter 8: Ecology and Nature Conservation [APP-017/3.1]. This assessment concludes that with appropriate mitigation there will be no significant adverse effects on biodiversity. With the enhancement measures included within section 8.11 of Chapter 8: Ecology and Nature Conservation [APP-017/3.1] the Scheme will generate beneficial effects for broad-leaved (ancient) woodland, hedgerows, terrestrial invertebrates, reptiles and amphibians, breeding and non-breeding birds, bats, Badger and other mammals, such as Brown Hare and Hedgehog).</p> <p>The mosaic of grassland habitats and buffers and improved and enhanced hedgerow network being provided by the Scheme will improve the quality, availability and permanence of foraging and resting habitats for Brown Hare.</p>
REP-071	<p>Queries if the Scheme has considered mitigation for the control of pests.</p>	<p>In terms of land drainage, weed burden, biosecurity and timeliness of soil stripping and storage there are measures included within the Outline Soil Management Plan [REP-030/7.12] to control these aspects.</p> <p>Measures to manage and monitor habitats created, as well as the biodiversity they support, is secured in the Outline LEMP [APP-231/7.10] and Framework OEMP [APP-225/7.4].</p>
REP2-101 REP2-094	<p>Concerns that removal of hedgerows will remove wildlife habitats.</p>	<p>The Framework CEMP [APP-224/7.3], Framework OEMP [APP-225/7.4], and Framework DEMP [APP-226/7.5], secure the mitigation measures required throughout the lifetime (construction, operation and decommissioning) of the Scheme, including mitigation for ecology and biodiversity. For example, the Framework CEMP sets out the retention and protection of existing habitats, e.g., woodlands, hedgerows and other seminatural habitats, which will ensure that wildlife will not be displaced. The</p>

WR	Summary	Applicant response
		<p>Framework CEMP also includes provisions for habitat re-instatement following construction and measures to minimise hedgerow loss.</p> <p>The Outline Landscape and Ecology Management Plan (OLEMP) [APP-231/7.10] outlines the landscape and ecology impact avoidance measures that would be implemented prior to, and during, construction of the Scheme, as well as the habitat restoration, enhancement, management and monitoring measures to be implemented once the Scheme is operational. Considerable enhancement measures are proposed as part of the OLEMP, with net gain proposed for the Solar and Energy Storage Park, when compared to baseline conditions, resulting in positive effects for ecology during the lifetime of the Scheme. Large areas of the Solar and Energy Storage Park have been excluded from development specifically for planting and wildlife linkages. There will be no loss of established wildlife corridors, nor fragmentation of habitats, as existing corridors, e.g., hedgerows, field margins, etc., will be retained and in many instances enhanced. Security fencing has been designed to continue to allow movement of deer across these existing corridors.</p> <p>A detailed assessment of the potential impacts of the Scheme on biodiversity are set out in section 8.10 of Chapter 8: Ecology and Nature Conservation [APP-017/3.1]. This assessment concludes that with appropriate mitigation there will be no significant adverse effects on biodiversity. With the enhancement measures included within section 8.11 of Chapter 8: Ecology and Nature Conservation [APP-017/3.1] the Scheme will generate beneficial effects for broad-leaved (ancient) woodland, hedgerows, terrestrial invertebrates, reptiles and amphibians, breeding and non-breeding birds, bats, Badger and other mammals, such as Brown Hare and Hedgehog).</p>
REP2-083	<p>Concern that removal of hedgerows goes against the governments targets to plan new hedgerows: How we're supporting hedgerows - Farming (blog.gov.uk)</p>	<p>The Outline Landscape and Ecology Management Plan (OLEMP) [APP-231/7.10] outlines the landscape and ecology impact avoidance measures that would be implemented prior to, and during, construction of the Scheme, as well as the habitat restoration, enhancement, management and monitoring measures to be implemented once the Scheme is operational. There will be no loss of established wildlife corridors, nor fragmentation of habitats, as existing corridors used by wildlife, e.g., hedgerows, field margins, etc., will be</p>

WR	Summary	Applicant response
		<p>retained and in many instances enhanced, through additional planting and strengthening of hedgerows, areas of scrub and broad grass margins. The management of these habitats will also seek to maximise their biodiversity value. This will increase the connectivity between habitats areas for wildlife and create broader and more resilient linkages across the landscape.</p>
<p>REP2-099</p>	<p>Concerns on the impact of the Scheme on 7 bat species identified by the Applicant. Report in the Journal of Applied Ecology by the University of Bristol (published 8 August 2023) found that bat activity was lowered by solar farms.</p>	<p>As set out in Table 8-10 of Chapter 8 of the ES [APP-017/3.1], the Scheme design retains and avoids habitats of value to bats. Table 3-3 of the Framework CEMP [APP-224/7.3 and as amended] includes the secured protective measures to ensure there are no impacts to potential bat roosts during construction.</p> <p>The Applicant acknowledges the publishing of this report, and has provided a detailed assessment on the potential impacts to bats from the Scheme. The Scheme has embedded substantial habitat creation and enhancement measures, to promote opportunities for foraging and commuting bats.</p>
<p>REP2-099</p>	<p>General concerns that the impact of solar farms on flora and fauna is not understood and that there is a lack of empirical evidence regarding the effects.</p>	<p>There is a growing body of evidence that demonstrates that solar farms can enhance biodiversity. Chapter 8: Ecology and Nature Conservation [APP-017/3.1], and Appendices 8-C to 8-L [APP-127 to 136/3.3] provide details of the extensive biodiversity surveys undertaken, following best practice guidance, to establish the presence of habitats and species. The results of these surveys have then been used to inform the Scheme design, which has carefully sought to avoid and minimise adverse impacts to habitats and species during all phases of the Scheme. These embedded measures within the Scheme design are set out in section 8.9 of Chapter 8: Ecology and Nature Conservation [APP-017/3.1] and detailed for each habitat and species in Table 8-10.</p> <p>The Framework CEMP [APP-224/7.3], Framework OEMP [APP-225/7.4], and Framework DEMP [APP-226/7.5], secure the mitigation measures required throughout the lifetime (construction, operation and decommissioning) of the Scheme, including mitigation for ecology and biodiversity. For example, the Framework CEMP sets out the retention and protection of existing habitats, e.g., woodlands, hedgerows and other semi-natural habitats, which will ensure that wildlife will not be displaced. The</p>

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		<p>Framework CEMP also includes provisions for habitat re-instatement following construction and measures to minimise hedgerow loss.</p> <p>The Outline Landscape and Ecology Management Plan (OLEMP) [APP-231/7.10] outlines the landscape and ecology impact avoidance measures that would be implemented prior to, and during, construction of the Scheme, as well as the habitat restoration, enhancement, management and monitoring measures to be implemented once the Scheme is operational. Considerable enhancement measures are proposed as part of the OLEMP, with net gain proposed for the Solar and Energy Storage Park, when compared to baseline conditions, resulting in positive effects for ecology during the lifetime of the Scheme. Large areas of the Solar and Energy Storage Park have been excluded from development specifically for planting and wildlife linkages. There will be no loss of established wildlife corridors, nor fragmentation of habitats, as existing corridors, e.g., hedgerows, field margins, etc., will be retained and in many instances enhanced. Security fencing has been designed to continue to allow movement of deer across these existing corridors.</p>
<p>REP2-079 (7000 Acres)</p>	<p><i>“The Environment Act 2021 Section 99 makes biodiversity gain a condition of NSIP planning permission. This requirement is expanded in Schedule 15 to the Act Schedule 4 (1).</i></p> <p><i>Section 105 (decisions in cases where no national policy statement has effect), after subsection (2) insert— “(3)Where there is a biodiversity gain statement under Schedule 2A in relation to development of the description to which the application relates, the Secretary of State may not grant the application unless satisfied that the biodiversity gain objective contained in the statement is met in relation to the development to which the application relates. (4)Subsection (3) does not apply to the extent that the Secretary of State is satisfied that deciding the application in accordance with that subsection would have an effect referred to in section 104(4), (5), (6) or (7).</i></p>	<p>Chapter 8: Ecology and Nature Conservation [APP-017/3.1], and Appendices 8-C to 8-L [APP-127 to 136/3.3] provide details of the extensive biodiversity surveys undertaken, following best practice guidance, to establish the presence of habitats and species. These surveys establish the current baseline present. The results of these surveys have then been used to inform the Scheme design, which has carefully sought to avoid and minimise adverse impacts to habitats and species during all phases of the Scheme. These embedded measures within the Scheme design are set out in section 8.9 of Chapter 8: Ecology and Nature Conservation [APP-017/3.1] and detailed for each habitat and species in Table 8-10.</p> <p>The BNG assessment presented in [APP-230] follows the Defra and Natural England guidance at the time of writing. A full assessment of the impact on birds, including displacement, is presented in Chapter 8: Ecology and Nature Conservation [APP-017/3.1].</p>

WR	Summary	Applicant response
	<p><i>The Applicant addresses this requirement in: Biodiversity Net Gain Assessment Document Reference: EN010131/APP/7.9. There is no detailed explanation how the values in biodiversity were determined. Reference is made to desk study, few details are provided on actual site surveys. The Applicant does not take account of the increased biodiversity resulting from changes to Government Policy, such as the Country Stewardship and Sustainable Farming Incentive. Therefore, as no credit is given for changes to Government Farming Policy, the Applicant's baseline assessment is likely to be too low.</i></p> <p><i>The document does not appear to consider biodiversity of animals, birds and invertebrates but concentrates on flora. There is no assessment in this document of the adverse impact on birds who are displaced by the change from open farmland to an energy landscape. A loss of bird life will result in a decrease in overall biodiversity."</i></p>	
<p>REP2-079 (7000 Acres)</p>	<p><i>There is no clear evidence that utility scale solar farms do increase biodiversity. Natural England (2016) stated, e.g., that "No experimental studies specifically designed to investigate the in-situ ecological impacts of solar PV developments were found in the peer reviewed literature." Similar sentiments regarding lack of studies from Planning Inspectorate (Adler, n.d.)</i></p>	<p>It should be noted that the Natural England report referenced is from 2016. Since then there is an increasing body of evidence from monitoring of operational solar farms that shows wide ranging benefits for biodiversity.</p>
<p>REP2-056 WLDC</p>	<p><i>It is unclear how the application will accommodate the presence of deer in the locality which are commonly seen and appreciated by local communities.</i></p>	<p>The Outline Landscape and Ecology Management Plan (OLEMP) [APP-231/7.10] outlines the landscape and ecology impact avoidance measures that would be implemented prior to, and during, construction of the Scheme, as well as the habitat restoration, enhancement, management and monitoring measures to be implemented once the Scheme is operational. This has been informed by existing topography and landscape features and has considered surface water mapping and drainage when proposing new areas of habitat creation, such as wet grassland.</p>

WR	Summary	Applicant response
		The arrangement of security fencing has been designed to maintain established wildlife corridors which will continue to allow the movement of deer across the landscape.
REP2-061 (the Environment Agency)	EA confirm concerns raised on ecology and biodiversity have now been resolved and the SoCG has been updated to reflect agreement.	Comment noted.
2.18 Glint and Glare		
REP2-101	General concerns on glint and glare	The Glint and Glare assessment included within Chapter 15: Other Environmental Topics [APP-024/3.1] assesses the impact of the Scheme on local receptors and concludes no significant effects.
2.19 Construction Period and Methods		
REP2-094	Request for clarification on whether construction period is 24 months or 36 months. Concerns that if the period is 36 months, this further extends the time the local community is affected by construction.	As stated within paragraph 5.8.20 within ES Chapter 5: EIA Methodology [APP-014/3.1] . The ES assesses the worst-case scenario, which will vary depending on the discipline. Each discipline defines the worst-case scenario for their respective chapter and assesses it. For example, the peak construction years for the purpose of the EIA is anticipated to be 2026; this assumes commencement of construction in Q1 2025 and that the Scheme is built out over a 24 – 36 month period. The 24- month construction period is a likely worst case from a traffic generation point of view because it compresses the trip numbers into a shorter duration and represents the greatest impact on the highway network. However, in terms of the employment assessment within Chapter 12: Socio-economics and Land Use [APP-021/3.1] a longer (36 month) construction phase would be worst case given employment effects are likely to be lesser (and therefore less beneficial) when spread over a longer period.
REP2-094	Query why construction period of minimum 24 months (see ES Chapter 14 para 14.4.11 [EN010131/APP/3.1]) is considered a worst-case scenario. Suggestion that a shorter construction period might compress	See response above.

WR	Summary	Applicant response
	the duration of many of the impacts so how can the Applicant conclude that a longer duration would have a lower impact on the community?	
2.20 Materials, Minerals and Waste		
REP-046 REP2-108 REP2-094	<p>Queries where the solar PV panels will be manufactured.</p> <p>Concerns regarding quality of products sourced from China and whether they are safe.</p> <p>Concerns regarding reliance on China for materials for socio-economic reasons e.g recent restrictions placed on certain minerals, threats to ban exports.</p>	<p>As seen in many other industries today, the world's supply of solar panels predominantly comes from companies based in China, followed by the wider Asia-Pacific region. However, as with many other global goods there are moves within both the EU and the USA to increase manufacturing capabilities to decrease the reliance on one region. Until such time that other manufacturers can provide sufficient panels in volume, the Applicant's modules supply may continue to include select suppliers from China and the wider Asia-Pacific region. While doing so, the Applicant applies the highest possible levels of transparency and sustainability throughout the value chain and continue to proactively strive for improvement on this issue through work at Low Carbon and collaboration with industry partners, such as Solar Energy UK. For example, in a recent agreement with one of the Applicant's suppliers, TRINA, the Applicant paid a premium to ensure the panels for their solar farms were manufactured with traceability and confirmed to be free from any forced labour. The panels are also sourced from renewables powered facilities. The Applicant visits the sites where the panels are manufactured and receive a paper audit trail with full traceability on the sourcing of the products. The Applicant condemns and opposes any abuse of human rights, including forced labour, and supports efforts to strengthen supply chain traceability and sustainability.</p>
REP2-113	Queries what will happen when components needed to manufacture PV panels are no longer available.	It is considered that there is a sufficient supply of components to manufacture PV panels throughout the lifetime of Scheme, particularly as it is considered that recycling routes will have expanded to meet demand as PV installations increase.
REP-048 REP2-094	Objects to environmental/ human rights issues associated with the extraction/production of materials used for battery storage and the manufacture of solar panels.	As seen in many other industries today, the world's supply of solar panels predominantly comes from companies based in China, followed by the wider Asia-Pacific region. However, as with many other global goods there are moves within both the EU and the USA to increase manufacturing capabilities

WR	Summary	Applicant response
REP2-079 (7000 Acres)	Request that the Applicant verify their supply chain is free from all slave labour.	to decrease the reliance on one region. Until such time that other manufacturers can provide sufficient panels in volume, the Applicant's modules supply may continue to include select suppliers from China and the wider Asia-Pacific region. While doing so, the Applicant applies the highest possible levels of transparency and sustainability throughout the value chain and continue to proactively strive for improvement on this issue through work at Low Carbon and collaboration with industry partners, such as Solar Energy UK. For example, in a recent agreement with one of the Applicant's suppliers, TRINA, the Applicant paid a premium to ensure the panels for their solar farms were manufactured with traceability and confirmed to be free from any forced labour. The panels are also sourced from renewables powered facilities. The Applicant visits the sites where the panels are manufactured and receive a paper audit trail with full traceability on the sourcing of the products. The Applicant condemns and opposes any abuse of human rights, including forced labour, and supports efforts to strengthen supply chain traceability and sustainability
2.21 Draft Development Consent Order (DCO) and Protective Provisions		
REP2-064 (National Grid Electricity Transmission plc)	<p><i>"NGET assets which have been identified as being within or within close proximity to the proposed Order limits are: (a) Substations: (i) Cottam 400kV Substation; (ii) Associated Cables; (iii) Associated fibre cables; (b) Overhead lines: (i) 400kV Cottom – Keadby 1; (ii) 400kV Cottom – Keadby 2; (iii) 400kV Cottom – Grendon; (iv) 400kV Cottom – Staythorpe 2; (v) 400kV Cottom – West Burton; (vi) 400kV High Marnham – West Burton; (vii) 400kV Cottom – Staythorpe 1; (viii) 400kV Bicker Fen – Spalding North – West Burton; (ix) 400kV Bicker Fen – Walpole – West Burton; and (x) 400kV Cottom – Eaton Socon – Wymondley 2.</i></p> <p><i>Further to NGET's relevant representations which were received by the Examining Authority on 11 April 2023, NGET will require protective provisions to be included within the DCO to ensure that its interests are</i></p>	The Applicant and NGET submitted a joint statement into Examination on 21 st August 2023 which confirmed the parties are engaged in negotiations on protective provisions and a side agreement. The parties are in regular contact and are confident protective provisions can be agreed before the end of Examination.

WR	Summary	Applicant response
	<p><i>adequately protected and to ensure compliance with relevant safety standards.</i></p> <p>....</p> <p><i>NGET will continue to liaise with the Applicant with a view to concluding matters as soon as possible during the DCO Examination, keeping the Examining Authority updated in relation to these discussions”</i></p>	
<p>REP2-061 (The Environment Agency)</p>	<p><i>4.1 Water Environment: “The protective provisions (Schedule 15, Part 8) included within the draft Development Consent Order (dDCO) are mostly in a form which is acceptable to the Environment Agency but there are some points we wish to discuss with the applicant ahead of agreeing a final version.”</i></p> <p><i>5.1-5.2 Environmental Permit: “The removal of text related to water abstraction and discharge permits within the dDCO is welcomed and resolves our previous concern on the disapplication of the Environmental Permitting (England and Wales) Regulations 2016 in its entirety The disapplication of The Environmental Permitting (England and Wales) Regulations 2016 for flood risk activities will be subject to agreement regarding protective provisions.”</i></p> <p><i>6.1 Application and modification of statutory provisions: “We have considered the disapplication of local legislation listed in Schedule 3 of the dDCO and can confirm we have no comments to make.”</i></p> <p><i>Requirements:</i></p> <p><i>“6.2 We welcome our inclusion as a named consultee to Requirement 6 (battery safety management plan) and would ask to be reinstated in the dDCO following our written summary of oral submissions at deadline 1. We will be able to provide advice during the discharge of requirement</i></p>	<p>The Applicant considers updates to Requirement 2 to be unnecessary as the EA already has sufficient protection via its role as consultee in other requirements (including for example requirement 12, construction environmental management plan) and protective provisions. The Applicant has discussed this issue with the EA and understands the EA is reconsidering its position on this matter.</p> <p>The Applicant has made various updates to Schedule 16 of the draft DCO at Deadline 3 including to extend the timescales at paragraph 3 of Schedule 16.</p>

WR	Summary	Applicant response
	<p>stage in terms of battery safety management for matters within our remit.</p> <p>We note that the applicant has amended the dDCO to list the Environment Agency as a named consultee for Schedule 2, Requirement 7 and 19, which is welcomed. We are also satisfied that the current wording of Requirements 6, 12 and 13 will secure appropriate consultation with the Environment Agency.</p> <p>6.3 Additionally, The Environment Agency wishes to be a specific named consultee in respect of Schedule 2, Requirement 5 (detailed design approval), more specifically on parts (a), the layout (c) proposed finished floor levels and (h) drainage, water, power and communications cables and pipelines in so far as it relates to flood risk and we would welcome the inclusion of “following consultation with the Environment Agency” after “relevant planning authority” for these points.”</p> <p><i>Schedule 16: Procedure for Discharge of Requirements</i></p> <p><i>“6.4 Within the ‘Gate Burton Energy Park Applicant Responses to Relevant Representations’ document (EN010131/APP/8.1, page 132) the applicant disagrees that the timescales at paragraph 3(3) of Schedule 16 need to be amended and makes reference to alleged precedents set by other Development Consent Order (DCO) applications. We maintain that 15 working days is an inadequate timescale for consultation and our concerns around the procedure outlined in this section of the DCO remain.</i></p> <p><i>6.5 We would draw your attention to other Orders that do provide for appropriate consultation timescales, such as The East Northamptonshire Resource Management Facility Order 2023 (Schedule 3, 4(2)), 21 business days; The Meaford Gas Fired Generating Station Order 2016 (Schedule 8, 2(2)), 28 days to notify that</i></p>	

WR	Summary	Applicant response
	<p><i>further information is required and The Norfolk Boreas Offshore Wind Farm Order 2021 (Schedule 16, 2(3)), 42 days.</i></p> <p><i>6.6 We also maintain that Schedule 16, Paragraph 4 (Appeals), (2)(c) should be amended to allow representations to be submitted within 20 working days.”</i></p>	
<p>REP2-060 (EDF Energy (Thermal Generation) Limited)</p>	<p><i>Cottam Power Station (the “Station”) and EDF’s Assets:</i></p> <p><i>2.2 The Station ceased generating in 2019 and EDF is responsible for the safe decommissioning and demolition of the Station assets. Decommissioning is now complete with demolition expected to be complete in Q1 2026. In this context, EDF notes that, if granted consent, construction of the Proposed Development is expected to start in early 2025 with construction taking 2-3 years. As such, the early stages of construction of the Proposed Development would overlap with demolition of the Station.</i></p> <p><i>2.3 EDF will require appropriate protection to ensure that the Proposed Development does not jeopardise continuing operations or site demolition. EDF’s rights of access to inspect, maintain, renew and repair infrastructure must also be maintained at all times and access to inspect and maintain such apparatus must not be restricted.</i></p> <p><i>2.4 The site continues to house critical live infrastructure for both National Grid and the adjacent Cottam Development Centre (“CDC”) which is owned and operated by Uniper. There are land agreements in place for the following third-party critical infrastructure housed at the site which the cable for the Proposed Development crosses: 2.4.1 A make-up and purge line, owned by Uniper, which supplies the CDC; 2.4.2 A 400kV underground electricity cable and gas pipeline owned by Uniper; 2.4.3 Underground and overground cables owned by National Grid; 2.4.4 Cables owned by Western Power Distribution; and 2.4.5 Potable water supplies necessary for the Station.</i></p>	<p>The Applicant is engaged with EDF on technical and land matters and on protective provisions. The Applicant will provide a further update into Examination as soon as practicable.</p>

WR	Summary	Applicant response
	<p><i>2.5 EDF understand that discussions are ongoing between the Promoter and other third parties (including Uniper) in respect of the protection of this live infrastructure. However, EDF must also ensure that it can comply with obligations it has to these third parties. Any infrastructure or operations associated with the Proposed Development must protect this third-party infrastructure and be undertaken in full compliance with the terms of the existing legal agreements and obligations entered into by EDF.</i></p> <p><i>2.6 A site separation agreement has been finalised with Uniper. Site separation discussions are ongoing with National Grid and are expected to be progressed by the end of 2023. Any infrastructure or operations associated with the Proposed Development must not negatively impact or hinder these site separation discussions.</i></p> <p><i>Future Development:</i></p> <p><i>3.3 EDF wish to ensure that the regeneration of the Station and the wider area is facilitated in line with the Council's requirements and ambitions [as set out in the Bassetlaw Local Plan 2020-2036 which designates a new "Cottam Priority Regeneration Area" (Policy ST6)]. It is therefore imperative that the proposed cable route of the Proposed Development does not sterilise development land or detract from future development plans. EDF notes that a similar position is referenced in the Local Impact Report submitted by Bassetlaw District Council in respect of the Proposed Development (REP-038). 3.4 To ensure that the proposed cable route of the Proposed Development does not impact on future development at the Station, EDF considers that a requirement should be imposed within the draft Development Consent Order ("dDCO") requiring the subsequent approval of the final cable routing by Bassetlaw District Council with EDF as a named consultee in respect of such an approval.</i></p> <p><i>Protective Provisions:</i></p>	

WR	Summary	Applicant response
	<p><i>4.1 EDF considers it necessary for the protection and continued safe operation and future demolition of the Station (as well as third-party infrastructure) that protective provisions be included within the dDCO. It is EDF's position that protective provisions are necessary and reasonable to avoid an adverse impact on and serious detriment to EDF's existing (and future) operations and to ensure that the Station can be safely demolished.</i></p> <p><i>4.2 Discussions with the Promoter remain ongoing as to the content and form of the proposed protective provisions, as well as any supplementary agreements that may be required, and, as such, the dDCO does not yet contain agreed protective provisions for the protection of EDF to EDF's satisfaction.</i></p>	
<p>REP2-056 WLDC</p>	<p><i>WLDC strongly objects to the Schedule 16 as currently drafted. The 6 week approval period currently required by Article 46.2 does not adequately reflect the usual timescale for EIA development which is 16 weeks. It is submitted this time period should apply given some of the requirements include the need to assess complex material, may require the need to procure external expertise to review material, and there may be the requirement for approvals to be determined by WLDC committee(s) therefore requiring the alignment with meeting calendars and processes. It is noted that the Longfield DCO allowed a period of 10 weeks, however discharge applications under this DCO are likely to be made concurrently with West Burton, Cottam and Tillbridge applications if they are granted consent. It is also noted that there is no mechanism in the dDCO restricting the number of discharge applications that could be simultaneously submitted. In this context a 16 week determination period is entirely reasonable. Subject to the submissions made above in respect of consultation requirements, WLDC consider that a provision should be added allowing agreements for a reasonable extension of time, with such an agreement not being</i></p>	<p>The Applicant has made various updates to Schedule 16 of the draft DCO to address WLDC's concerns and following submissions made at ISH2 on the draft DCO. Please see the Applicant's written summary of oral submissions at ISH2 and the updated draft DCO submitted at Deadline 3.</p>

WR	Summary	Applicant response
	<p><i>unreasonably withheld, particularly if the relevant determining authority is required to consult other bodies.</i></p> <p><i>WLDC object to this deemed approval provision. The justification relied on the by the Appellant is one of efficiency (Explanatory Memorandum at 6.16.1) do not cite any unique or specific reason why such a provision should be included. This is especially relevant whether other DCOs, including those cited in the Explanatory Memorandum itself, do not provide for deemed approval or only do so in relation to certain requirements, rather than all of them. Indeed, the Applicant describes the Schedule 16 process as 'bespoke' (Explanatory Memorandum at 6.16.1). Given the importance and significance of the substantive areas governed by the requirements WLDC submits that it is unacceptable for any of the requirements to be subject to deemed approval.</i></p> <p><i>WLDC object to the requirement under Article 46.3.(2) that further information must be requested in 10 working days. The relevant determining authority will need to sufficiently assess the information in order to identify whether further information is required. This essentially requires that the WLDC all but procedurally determine the application in 10 working days. Similarly, WLDC object to the time periods in 3.(3), in particular, it is unreasonable to require the relevant determining authority to request further information within 15 working days where they have consultation requirements, as the response period of such consultees is not within their control.</i></p> <p><i>WLDC submit that the usual fee provision (see the Longfield DCO), which has been excluded without any justification given by the Appellant, is reinstated in Schedule 16.</i></p>	
2.22 Compulsory Acquisition (CA)		
REP2-048	Raises concerns over CA powers used to intimidate landowners.	The Applicant is seeking compulsory acquisition powers utilising the process required by the Planning Act 2008 and associated regulations and guidance. This includes a process of notification of the Applicant's compulsory acquisition application, in the normal manner. It remains the Applicant's preference to enter into voluntary agreements with all relevant land interests.

WR	Summary	Applicant response
<p>REP2-065 (Network Rail Infrastructure Limited)</p>	<p><i>“...the Book of Reference identifies the following 7 plots of land over which Network Rail have rights or own or occupy. The plots are as follows: • 3-2; • 5-11; • 6-3; • 6-6; • 6-8; • 10-15; and • 15-11. (together the Plots).</i></p> <p><i>The Applicant is seeking, through compulsory purchase (Compulsory Powers), the permanent acquisition of rights and temporary use of land over all 7 Plots.</i></p> <p><i>NR objects to the use of Compulsory Powers and temporary powers over the Plots to deliver the development to be authorised by the DCO.</i></p> <p><i>Network Rail continues to investigate the extent of the risk to its assets and is liaising with the Promoter in relation to any mitigation required and it is anticipated that this will continue during the examination process.</i></p> <p><i>In order for NR to be in a position to withdraw its objection to the making of the Order, it will require the following matters to be concluded and secured to its satisfaction:</i></p> <ol style="list-style-type: none"> <i>1. Network Rail requires its standard protective provisions to be included within the DCO to ensure that its interests are adequately protected and to ensure compliance with the relevant safety standards. Good progress has been made between the parties on the form of protective provisions to be included in the DCO.</i> <i>2. Network Rail requires the completion of a framework agreement to regulate the manner in which rights over railway property are to be granted and in which works are to be carried out in order to safeguard</i> 	<p>As noted by Network Rail, the parties are in discussions to resolve outstanding matters and will provide an update into Examination as soon as practicable.</p>

WR	Summary	Applicant response
	<p><i>Network Rail's statutory undertaking. Engineers for Network Rail are continuing to review the extent of impacts on operational railway and Network Rail property and any mitigation required (including NR's review and prior approval of the design proposals for the parts of the DCO scheme which interface with the railway at detailed design and construction stages) will be considered in this agreement.</i></p> <p><i>Network Rail and the Promoter are in discussions about the effects of the DCO in general and will continue to liaise to address all outstanding matters."</i></p>	
REP-046	Queries whether CA is required for all and within the Order Limits.	Compulsory acquisition powers are sought over all Order land to ensure that the Scheme, which is a nationally significant infrastructure project, can proceed without undue delay. The scope and purpose of the compulsory acquisition powers is explained in the Statement of Reasons, an updated version of which is submitted at Deadline 3.
REP-046	Queries how the draft DCO be structured to protect landowners whom have signed lease contracts with the Applicant (and any subsequent transferee) from CA.	This is a matter which is governed by the confidential voluntary agreements which the Applicant has entered into. Please see the Applicant's written summary of oral submissions at CAH1 for further details.
2.26 Noise and vibration		
REP2-126 REP2-090 REP2-105 REP2-085	<i>Concerns regarding the noise and disruption involved in building the Scheme</i>	A full noise and vibration assessment is provided in Chapter 11: Noise and Vibration [APP-020/3.1] of the ES which concludes no significant effects. In terms of the construction works, temporary construction compounds have been located so they are not in close proximity to sensitive receptors. Whilst noise may be audible for period, the level at receptors is not considered to be significant. Construction noise levels will be controlled through the use of embedded mitigation and the use of the CEMP. A Framework CEMP has been submitted as part of the DCO Application [APP-224/7.3] .

WR	Summary	Applicant response
REP2-126 REP2-116 REP2-101 REP2-090 REP2-085	<p><i>Concerns regarding the noise and disruption involved in ongoing maintenance of the Scheme.</i></p> <p><i>In particular, concerns that there will be daily noise from the Scheme.</i></p>	<p>In terms of the operational phase, as part of embedded mitigation measures, the distance between noise sources and receptors has been maximized as far as reasonably practicable. Measures to minimise potential adverse effects associated with the operational phase are outlined in the Framework OEMP [APP-225/7.4].</p>
REP2-056 WLDC	<p><i>a key requirement for WLDC is to exert appropriate control on vehicle movements and construction activity to ensure that the potential cumulative impacts are adequately controlled over what could be a significant time period.</i></p> <p><i>Including a co-ordination mechanism on control documents (e.g. CEMP/CTMP) will assist in controlling these impacts and allowing communities to carry-out day to day activities with knowledge of traffic controls, AIL movements and working pattern on sites.</i></p> <p><i>Such a mechanism will allow for the consideration of measures to minimise impacts at a point in time and communicate effectively with WLDC and communities.</i></p>	<p>Noted.</p>
2.27 Lighting, Dust and Air Quality		
REP2-090	<p>Concern about light emitted from Scheme at night.</p>	<p>Any lighting during construction and decommissioning will be directional and task-specific to avoid light spill. These measures are included within the Framework CEMP [APP-224/7.1] and Framework DEMP [APP-226/7.5]. In terms of the operational phase, no part of the Scheme will be continuously lit. Manually operated, and motion-detection lighting will be utilised for operational and security purposes around electrical infrastructure such as inverters, transformers and switchgear across the solar PV array areas, and within the compounds and substations. Lighting will be directed downward and away from boundaries. No visible lighting will be utilised at the site perimeter fence, aside from the site entrance points. These measures are formalised in the Framework OEMP [APP-225/7.4].</p>

WR	Summary	Applicant response
2.28 Funding		
REP2-118	<p>Concerns regarding change of owner company to a new company within the Low Carbon Group, and the questions this raises about project viability and financial support.</p> <p>Concerns that Low Carbon intend to sell on the project once approval secured and request that Low Carbon declare its financial commitment to developing the project to operation at least.</p> <p>Request that applicant publishes its “Risk Analysis Report” so that interested parties understand the risks identified and proposed remedies.</p>	<p>There are no issues around the ownership structure. The development phase of Gate Burton Energy Park has been and remains fully funded through Low Carbon UK Solar Investment Company Limited.</p> <p>For construction, as explained in the Funding Statement [APP-221] the funding will likely come from both equity and debt finance and the Gate Burton Energy Park Limited company will be vested to the amount required to meet all of its obligations.</p> <p>Low Carbon intends to own and operate the site.</p>
2.29 Examination Process		
REP2-048	State the NSIP process is being used to avoid local decision-making.	The Scheme meets the criteria to be a Nationally Significant Infrastructure Project as set out in the Planning Act 2008 and there is therefore no flexibility over how the project is consented. Local authorities are, however, central to the NSIP process.
REP2-091	Concern that a large proportion of local community have been cut out of the process due to the technology needed to respond and the time involved.	The Applicant thanks the community for their continued engagement in the Examination of the Scheme. The Planning Act 2008 sets out statutory time limits for the examination of an NSIP, which is 6 months. The Planning Inspectorate (PINS) provides advice on how Interested Parties can engage in the process (see Advice Note 7) and the Applicant would encourage Interest Parties to contact the Gate Burton Energy Park PINS Case Team should they have any queries regarding the Examination process or how to make submissions.
2.30 Cumulative Impact with other solar schemes		

WR	Summary	Applicant response
<p>REP2-079 (7000 Acres)</p>	<p><i>“Although this Application is being conducted under PA2008.105, if the ExA does decide to note any general principles shown in EN-1, then the following might be helpful. EN-1 Paragraph 4.1.4 states: “In this context, the Secretary of State should take into account environmental, social and economic benefits and adverse impacts, at national, regional and local levels.” Paragraph 4.2.6 goes on to state: “the Secretary of State should consider how the “accumulation of, and interrelationship between effects might affect the environment, economy or community as a whole, even though they may be acceptable when considered on an individual basis with mitigation measures in place.” Advice Notice Seventeen provides additional guidance on a Cumulative Effects Assessment (CEA). The Applicant’s Environmental Statement (ES) Chapters 6 to 15 outline their assessment of the cumulative impact.”</i></p> <p><i>“The Applicant has chosen not to take full account of the other three solar NSIPs located nearby, despite sharing some facilities, such as the cable corridor. Instead, the Applicant has designated zones of influence that are convenient for their case; for example, only 2km as being sufficient for assessing the cumulative impact on ecology and nature conservation, despite Red List birds being displaced by all the sites. Other criteria, such as noise, air quality, glint and glare are allocated even smaller zones of influence.”</i></p>	<p>The cumulative impact of the Scheme along with other proposed solar projects in the local area are considered within Chapter 16: Cumulative Effects and Interactions [APP-025/3.1]. The Applicant has re-assessed the conclusions in Chapter 16 in the light of additional information produced for the West Burton and Cottam DCO applications and in the Tillbridge Preliminary Environmental Impact Assessment. This assessment is presented in the Report on the Interrelationships with other NSIPs report [8.2] submitted at Deadline 3. It concludes that there are no changes to the assessment or conclusions as a result of further information.</p>
<p>REP2-048</p>	<p><i>Raises concerns over the number of Scheme’s in Lincolnshire.</i></p>	<p>The Applicant has had regard to developments in the surrounding areas in its cumulative assessment, which has been undertaken in each of the technical chapters of the ES and summarised in Chapter 16: Cumulative Effects [APP-025/3.1].</p>
<p>REP2-104</p>	<p>Concerns about the combined construction implications of the Scheme, West Burton, Cottam and Tillbridge. In particular, whether this will create heavy traffic over a small area for a significant period of time.</p>	<p>It is the Applicant’s intention to work with the developers of Cottam, West Burton and Tillbridge projects to develop joint mitigation and this approach has been agreed between the parties as evidenced in the Interrelationships Report and the cooperation agreement entered into. The Framework CTMP for the Gate Burton Energy Park sets out this possibility in paragraph 3.2.6 and 7.6.1 [REP2-020-021/3.3].</p>

WR	Summary	Applicant response
		<p>A Joint CTMP could support implementation of shared mitigation measures such as joint traffic management, joint consultation with Lincolnshire County Council traffic officers, combined vehicle access and routing plans, shared use of construction compounds, taking a holistic approach to construction traffic planning and management.</p> <p>The Cumulative Transport and Access Technical Note which is appended to the Interrelationships with Nationally Significant Infrastructure Projects Report [REP-033/8.2] submitted at Deadline 1 modelled the Gate Burton, West Burton, Cottam and Tillbridge projects under a worse case peak construction scenario. This assessment provided an updated assessment due to the availability of additional information on the Cottam, West Burton and Tillbridge projects since production of the ES. Increased vehicle numbers on all access routes fell well below the IEMA threshold 30% increase in vehicle numbers with the residual cumulative effect identified as negligible.</p>
<p>REP2-056 WLDC</p>	<p><i>A key concern for WLDC relates to the cumulative impact of the solar NSIP projects upon the district. The three applications currently 'accepted' for examination are this Gate Burton proposal, alongside the West Burton (pre-examination phase) and Cottam (pre-examination phase, Rule 6 published).</i></p> <p><i>Whilst WLDC acknowledge that each application is to be examined and determined on its own merits, the potential cumulative impacts two or more of the applications being constructed and operated cannot be ignored. To determine each application solely on the basis that it is isolated, without considering the likely combination of impacts with the other applications, would be inadequate. Such an approach could lead to a conclusion that each scheme is acceptable in its own merits without considering how they relate to each other and whether this results in a conclusion that such impacts become unacceptable.</i></p> <p><i>Gate Burton will have an impact on agricultural businesses. As set out previously in this Written Representation, the impact on agricultural land tenant farmers should also be considered in the wider context of the four proposed solar NSIP's which will occupy a large area of Lincolnshire's land area (1%). There are real concerns as to the displacement of tenant farmers across significant tracts of agricultural</i></p>	<p>The Applicant has had regard to developments in the surrounding area in its cumulative assessment, which has been undertaken in each of the technical chapters of the ES and summarised in Chapter 16: Cumulative Effects and Interactions of the ES [APP-025/3.1].</p> <p>Measures being taken to reduce the cumulative impact of multiple solar projects in the local area include a commitment to a shared Grid Connection Corridor as outlined in Chapter 3: Alternatives and Design Evolution [APP-012/3.1]. Other commitments are outlined in Chapter 16: Cumulative Effects and Interactions [APP-025/3.1]. A document reporting particularly on the interrelationships between the four NSIP solar projects in the area has been submitted at Deadline 1 [8.2], with future iterations planned to further document measures to assess and reduce cumulative effects.</p> <p>There are four farms within the Solar and Energy Storage Park. All farms within the Solar and Energy Storage Park (SESP) are owner-occupied. No tenant farmers are being displaced. The agricultural employment from the current arable, energy crop and biodiversity land management enterprises will change. Should the site be grazed by sheep during the operational</p>

WR	Summary	Applicant response
	<p><i>land over a 40-60 year period and the seeming expectation that the agricultural industry will simply be able to pick up and recommence in the year 2088 where it left off 60 years earlier. This is not adequately addressed by the application.</i></p> <p><i>WLDC recognises the impact on tourism from the proposed solar schemes would be detrimental to West Lindsey's character which is a key factor which attracts visitors to the area. With a growing visitor economy at present, the impact of the cumulative developments could result in the potential loss of employment in this sector as people will not be attracted to the area.</i></p> <p><i>The cumulative impact of all three currently submitted DCO projects (and future NSIPs planned for submission) would result in unacceptable significant adverse harm to the landscape character of West Lindsey to which WLDC objects to in the strongest manner. The geographical coverage of the three project would span approximately over 13 miles from the southern-most point to the northern-most. The landscape would be transformed from a predominantly large scale agricultural character, to one that is characterised by solar electricity generating stations. The cumulative impacts of all projects will be experienced over a wide area, particularly from the Lincoln Cliff over the Trent Valley, which would be significantly altered and character harmed as a consequence of the proposed projects. The blanket of utilitarian, industrial solar panel arrays would be punctured by a proliferation of Battery Energy Storage Systems, substation/converter stations and other associated development.</i></p> <p><i>Whilst landscape mitigation measures are proposed, these effectiveness of these measures in themselves will also be nullified by the amount of development proposed cumulatively.</i></p> <p><i>WLDC disputes the applicant's contention that the impacts of the development are temporary and reversible. With a consent period of 60 years being sought, this timescale should not be considered temporary in the decision making process. Generations of communities would experience the solar farm landscape for most of their lives and to dismiss such impacts as temporary is disingenuous. Whilst site decommissioning is likely to result in the removal of much of the</i></p>	<p>phase, there will be agricultural employment during the operational phase from the management of sheep and grassland. What agricultural enterprises will be selected at the end of decommissioning will be influenced by a great number of factors, not least how well we have contained climate change. Continued land management, for agriculture, is the expected future land use.</p> <p>In terms of the impact of the cumulative Schemes on the character of the landscape, ES Appendix 10-H Cumulative Effects [APP-151/3.3], states that at the scale of County and District Landscape Character Areas all four solar projects will lie within the Trent Valley LCA. Although inter-visibility between the schemes will be limited and views in combination typically dominated by the closest solar farm, others are likely to be visible as a distant but discernible element in the view. The relatively flat nature of the landform (albeit rising to the Willingham ridgeline) is such that no elevated views of the footprint of the solar farms will be obtained. Experience of them as an element influencing landscape character will typically be in sequence through repeated views from footpaths or roads. The scale of addition to the landscape of the Trent Valley LCA assuming each scheme includes mitigation through hedgerow or other planting is such that solar farms will be a notable localised element rather than a key characteristic. Therefore, the Trent Valley LCA will not be defined by solar farms or become a "solar farm landscape" in which they are the defining characteristic. Locally at the scale of LLCA 06/LLCA 07 and LLCA 08 solar farms will represent a medium magnitude of change through addition and longevity such that effects on landscape character will be of moderate significance.</p> <p>In response to the point that a consent period of 60 years should not be considered temporary, the Applicant has updated the draft DCO at Deadline 1 to amend Requirement 19 to ensure that decommissioning must take place no later than 60 years following the date of final commissioning of the authorised development. Therefore, the Scheme cannot continue indefinitely and is therefore temporary. The Scheme is also reversible after its lifetime and in that respect is a long term, temporary use.</p>

WR	Summary	Applicant response
	<p><i>infrastructure, there remains uncertainty about what may remain and consequently hindering a return to agricultural use and the districts cultural landscape character.</i></p> <p><i>WLDC consider that these wider impacts must be adequately assessed during the examination (including site visits where necessary) and must be weighed in the planning balance.</i></p> <p><i>The cumulative traffic impacts are discussed in detail above but bear repeating again here. WLDC are very concerned about the potential cumulative construction timescales, which will result in significant impacts on communities and the socio-economic dynamic of West Lindsey, which could last for 5 to 7 years (as assessed by the applicant).</i></p> <p><i>To dismiss these impacts as temporal and insignificant is inadequate. WLDCs contend that they should be considered as long term impacts and must be given significant weight in the decision making process.</i></p> <p><i>WLDC maintain an objection to the project on the basis of cumulative impacts; however, commit to engage with potential solutions suggested in the above sections of this representation. It is essential in WLDC's view, that detailed control mechanisms are developed during the examination phase to ensure that the application is determined with these in place.</i></p>	
<p>2.31 Scheme Lifetime</p>		
<p>REP2-116 REP2-079 (7000 Acres)</p>	<p>Concerns that 60 year scheme is not “temporary” and equates to a generational period of time.</p> <p>Reference to Planning Inspector for the Lullington solar farm (The Planning Inspectorate, 2023): “Whilst the 40-year period may allow for the restoration of the soil structure and reduce the problems associated with nitrates usage, it appears to me, as it has done to other Inspectors at appeals cited by the Council, that 40 years would indeed constitute a generational change.”</p>	<p>To maximise the benefits of the Scheme in terms of energy generation and carbon emission reductions, the lifetime of the Scheme is 60 years, which has been comprehensively assessed in the Environmental Statement accompanying the DCO application.</p>

WR	Summary	Applicant response
REP2-116	<i>Concerns that the scheme infrastructure will become obsolete before 60 year scheme end as a result of new technologies e.g. by solar glass windows, solar roof tiles.</i>	It is considered that given the required increase in UK solar capacity that both rooftop and large-scale solar projects are required and therefore it is extremely unlikely that the scheme infrastructure will become obsolete before 60 years.
2.32 Application of Planning Policy		
REP2-079 (7000 Acres)	“As a general comment, throughout their Application and associated documentation, the Applicant references EN-1 and EN-3 as support for their case. As shown in the Rule 6 Letter, there are no relevant National Policy Statements applicable to this project, therefore references to EN-1 and EN-3 are irrelevant and so should be disregarded by the ExA.”	<p>The Applicant’s updated Planning Design and Access Statement (PDAS) submitted at Deadline 2 [EN010131/APP/2.2 (Version 2)] accounts for the updated draft National Policy Statements draft EN-1 and draft EN-3 (updated in March 2023). The Applicant acknowledges at paragraph 1.3.6 of the PDAS that the current NPSs (published in 2011) do not specifically mention solar development. Designation of the new draft NPSs has not yet occurred and therefore section 104(2) of the Planning Act 2008 will not apply to the Scheme. Nevertheless, draft EN-1 and draft EN-3 are still considered relevant.</p> <p>When granting consent for previous solar DCO schemes such as the Little Crow Solar Park Order 2022 and the Longfield Solar Farm Order 2023, the Secretary of State confirmed that the Draft NPSs are important and relevant in decision making under section 105 of the Planning Act 2008.</p>
REP2-079 (7000 Acres)	<p>There is currently insufficient evidence for the ExA to conclude that the BESS would be Associated Development or an aim in itself...</p> <p>Amongst other things the following details are unclear:</p> <ul style="list-style-type: none"> • Any indications as to the total power of the BESS (rated in megawatts) • Any indications as to the storage capacity and duration of storage (rated in megawatt hours) • Sufficient evidence regarding the network and how the PV cells will be connected to the BESS • Any explanation over the energy balancing role of the BESS and energy import from the National Grid. These features are discussed in 	<ul style="list-style-type: none"> • In terms of the total power of the BESS, based on the current design assumptions, the maximum power of the BESS would be no greater than 500MW (the limit of maximum export to the grid) • The storage capacity in terms of energy (rated in megawatt hours) is determined by the space constraints for the BESS as defined in the Outline Design Principles [APP-007] which describes physical parameters that limit specific elements of the scheme, including parameters which will have the effect of capping the energy capacity of the proposed BESS. The Applicant therefore is not proposing a limit to the energy capacity of the BESS element of the proposal for Gate Burton Energy Park.

WR	Summary	Applicant response
	<p>publicity material but not in the dDCO, so will they be a feature of the BESS?.....</p> <p>It is clear that there is no National Policy Statement or Guidance to PA2008 that allows a 500+MWh BESS to be installed as part of a solar NSIP. The Applicant has provided no 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. 7000Acres believes that the BESS is an “additional revenue for the applicant, in order to cross-subsidise the cost of the principal development”. As the BESS is aimed at cross subsidising the solar project, and so not associated development, it should be heard under a separate application in accordance with the Infrastructure Planning (Electricity Storage Facilities) Order 2020, i.e. determined through the Town and Country Planning Act by the LPA.</p>	<ul style="list-style-type: none"> Both the Solar PV and BESS are connected to the same medium voltage network in the Solar and Energy Storage Park. This combined medium voltage network is then stepped up to high voltage for the cables running to the point of connection at Cottam Substation. This allows the Solar PV to charge the BESS directly without interaction with the grid. In terms of the energy balancing role of the BESS and energy import from the National Grid, the BESS will provide Ancillary Services which are essential to support the smooth functioning of the grid. The BESS will also help National Grid Electricity System Operator (NGESO) balance supply and demand by participating in the Balancing Mechanism. Assets to provide these functions (by providing Ancillary Services and operating in the Balancing Mechanism) are necessary to address the impacts of increasing renewable energy sources (RES) which displace the carbon intensive means of generation that have traditionally provided these functions. The need is expected to grow as a result of the further rollout of RES onto the GB electricity system. In order for the BESS to fulfil both of these functions, the BESS will at times import power from the principal solar development. It will also need to be able to import power from the grid as well as export power to the grid to provide these services, and further information as to why this is the case is provided within Q1.1.14 Applicants Response to ExA First Written Questions [REP2-041]. <p>In terms of the final point, the Applicant addressed these concerns in detail at the issue specific hearing on the draft DCO [APP-215/6.1].</p> <p>In summary, the appropriate tests for “associated development” are set out within the ‘Planning Act 2008: associated development applications for major infrastructure projects’ (DCLG Guidance, April 2013). There is a direct relationship between the associated development and the principal development; the BESS supports the operation of the solar farm and it is not an aim in itself; it is proportionate and is not solely included only as an additional source of revenue. As such, the Applicant is confident that the tests for associated development are met.</p>

WR	Summary	Applicant response
		For more information see the Applicant's written summary of its oral submissions made at the issue specific hearing, as submitted at Deadline 1.
2.34 Marine Environment		
<p>REP2-063 (Marine Management Organisation)</p>	<p>2.2. Major comment: Insufficient information to assess impacts</p> <p>The MMO have not had sufficient time to review the Environmental Statement in its entirety, due to the late-stage engagement with the MMO by the applicant to this project....However, the MMO has had consideration of the following chapters of the ES when providing the below response: o Chapter 2 – The Scheme [APP-011]; o Chapter 3 – Alternatives and Design Evolution (and appendices) [APP-012]; o Chapter 9 – Water Environment [APP-018]; o Chapter 15 – Other Environmental Topics [APP-024]; and o Chapter 17 - Summary of Significant Environmental Effects [APP-026].</p> <p>The MMO can see no direct reference within the Environmental Statement to the impacts of the proposed works on the marine environment. The MMO recommend PINS request this. It is standard practice for an environmental statement to include a marine environment chapter and the environmental statement should be updated to include this chapter. It is acknowledged that the applicant has provided a water environment chapter which concludes that there are no significant impacts of the proposed works on the water environment. However, the MMO would expect a marine environment chapter to be provided in an environmental statement for a DCO application which includes an application for a draft deemed marine licence.</p> <p>The MMO note that the activities listed in the dML are not mentioned specifically within the scope of the works assessed in the Environmental Statement. Therefore, 5 it is unclear what the impacts of</p>	<p>Please see the Applicant's response to Q1.6.29 of the ExA's First Written Questions [REP2-041].</p> <p>The Applicant also made oral submissions on this topic at ISH2 on the draft DCO which are summarised in its written summary of oral submissions at ISH2 on the draft DCO, submitted at Deadline 3.</p> <p>For completeness, a separate marine environment chapter is not required as there are no impacts on the marine environment. As stated in the comment all impacts related to water have been assessed within Chapter 9: Water Environment [APP-018/3.1] which concludes no significant effects.</p>

WR	Summary	Applicant response
	<p>the proposed marine licensable activities are, as this is grouped with activities not listed as licensable. It is considered the Environmental Statement is insufficient to support the dML application and has not adequately considered impacts to the marine environment. The MMO note that the Environmental Statement Marine Environment Chapter should assess the impact of the worst-case scenario. In addition, as the proposed works lie within the East inshore Marine Plan area, the East inshore Marine Plan Policies will need to also be considered in the Environmental Statement.</p> <p>2.3.Major comment: Insufficient information to identify licensable activities within the proposed works</p> <p>...The activities presented in the draft dML as described do not fall under [section 66 of the Marine and Coastal Access Act 2009], or insufficient information has been provided to determine if the works fall under the Marine and Coastal Access Act 2009 or The Marine Licensing (Exempted Activities) Order 2011.</p> <p>Marine licensable activities are determined by their location (below mean high water springs), type of activity (as described in Section 66 of the Marine and Coastal Access Act 2009) and due to the nature of the impacts and scale of the works in accordance with parameters set out within The Marine Licensing (Exempted Activities) Order 2011.</p> <p>...there is inconsistency between the description of the draft dML activities and the scope of the works in the Environmental Statement. Within the Environmental Statement, Chapter 3 [APP-012], the applicant has proposed two cable options for crossing the River Trent, an underground cable or overhead line, “ 5.2.19 To summarise, detailed surveys consider all three Grid Connection Corridors as broadly equivalent in terms of safety, proximity to occupied buildings and infrastructure. Overhead line installation is less preferred primarily due to the prevalence of existing overhead lines in the area, the increased</p>	

WR	Summary	Applicant response
	<p>risk of damage and impact of weathering and resultant maintenance required and the complexity of the Trent crossing”.</p> <p>The laying of cables is an activity that could require a marine licence under the Marine and Coastal Access Act 2009, Section 66(7). It is the applicant's responsibility to identify the marine licensable activities within their proposed works. However, in the dML only the underground cable activity was submitted. In the Outline Design Principles document [APP-007] the applicant confirms they are committed to crossing the River Trent by the underground cable method, but this should be stated clearly within the DCO application and Environmental Statement.</p> <p>In addition, the MMO would require further information in respect to the ‘underground cable activity’ described in the draft dML as: ‘— (a) works to lay electrical cables including one 400 kilovolt cable circuit connecting Work No. 4A to Work No. 4C including tunnelling, boring and drilling works for trenchless crossings’.</p> <p>The MMO consider this underground cable activity which involves the construction of a borehole may be exempt from requiring a [deemed] marine licence, if works are considered to not have a significant adverse impact on the marine environment in accordance with Article 35 of the 2011 Exempted Activities Order: ‘35.—(1) Article 4 applies to a deposit or works activity carried on wholly under the sea bed in connection with the construction or operation of a bored tunnel. (2) Paragraph (1) is subject to conditions 1 and 2. (3) Condition 1 is that notice of the intention to carry on the activity must be given to the licensing authority before the activity is carried on. (4) Condition 2 is that the activity must not significantly adversely affect any part of the environment of the UK marine area or the living resources that it supports. (5) But article 4 does not apply to any such deposit carried on for the purpose of disposal’.</p> <p>To date the applicant has only identified significant adverse impacts on the ‘Landscape and Visual Amenity And Visual Receptors</p>	

WR	Summary	Applicant response
	<p>(Construction)' (Environmental Statement Chapter 17: Summary of Significant Environmental Effects [APP-026]). No significant adverse impacts have been identified in the Environmental Statement from the proposed marine licensable activities (borehole construction and subsequent underground cable laying). Therefore, from this and in the absence of further information from the applicant, the MMO suggest that the borehole activities are likely to fall under Article 35 of the 2011 Exempted Activities Order. However, further information is required from the applicant for the MMO to confirm this position. If the applicant is unable to provide information on whether the proposed marine licensable activities will or will not have a significant adverse impact on the marine environment, the MMO will be unable to advise further. The MMO reiterate that Environmental Statement should contain a marine environment chapter, which considers the impacts of the proposed works. 7</p> <p>In addition, the MMO note that in the scenario that the entry and exit sites of the borehole occur above mean high water springs, and that the borehole tunnel will be below the marine substrate it is unlikely the works will pose a significant impact to the marine environment. However, further evidence and information should be provided by the applicant confirming the location of the entry and exit routes. This should be provided in a marine environment chapter of the Environmental Statement. The MMO requested the applicant to confirm whether the position of the borehole entry and exit locations are above mean high water springs by email on the 2 August 2023 and have received no confirmation response to date. If the entry and exit site for the boreholes are below mean high water springs, the MMO consider this should be stated and the impacts assessed in the Environmental Statement and the applicant should consider if the works will have a significant adverse impact.</p> <p>The MMO acknowledge some information on the entry ['launch'] and exit site for each borehole has been provided in the Environmental Statement Chapter 9 [APP018] Section 9.2.23 'The sections of the</p>	

WR	Summary	Applicant response
	<p>cables that will be installed via HDD will require launch and reception pits to be installed at distances between 200m and 500m (750m in one or two exceptional circumstances) along the HDD section of the route. Launch and exit pits will be sited outside the avoidance areas, and a minimum of 10m from watercourses (measured from the centre line of the watercourse as discussed above with the exception of the River Trent) and a minimum of 16m from the toe of flood defences.’ The MMO request further clarification as to why the River Trent is the exception and the distance to the entry and exit pits for the River Trent, to enable further advice to be provided.</p> <p>If the proposed works fall under an exemption, which cannot be determined to date due to the lack of information in the Environmental Statement, the applicant should follow the marine licensing exemption process. If an exempted activity is applied for during the DCO process, the applicant must note the exempted activity within the DCO and give notification of the intention to carry out the activity to the MMO before works commence.</p> <p>The MMO consider that a dML cannot be granted for the proposed works, as based on the information we have received to date, the works have the potential to be an exempt activity and therefore would not require a marine licence.</p> <p>The MMO therefore consider a dML should not be granted due to insufficient information, as the activities described do not clearly fall under The Marine and Coastal Access Act 2009.”</p>	

2. Appendix A

Appendix A – Applicant Responses to 7000 Acres Action Group Submissions

Table A1 – Applicant Response to Joint Position from Parishes Regarding Solar Developments

WR	Summary	Applicant response
	<p><i>Our position is that we agree that climate change calls for action to decarbonise our economy. However, we are concerned that the benefits the schemes can bring are being overstated and oversimplified by developers, because the role solar can play in decarbonisation is very limited:</i></p> <ul style="list-style-type: none"> <i>• In the UK, solar panels produce on average between 9% and 11% of their rated output – and they produce most of that power on sunny, summer days when we least need it. When demand is at its highest, on winter evenings, they produce nothing at all.</i> <i>• To keep the lights on, something else must produce power when solar is not producing, so for much of the year, that means relying on alternative sources, e.g. which may be low carbon (e.g. wind, hydro, nuclear), but may as easily be fossil based (e.g. gas, oil, diesel).</i> <i>• The proposed solar projects make no material attempt to match when power is produced to when it is needed. They take up a huge amount of space for the limited contribution they can make to the electricity system, and therefore represent an extremely inefficient use of land.</i> 	<p>The Applicant disagrees that the benefits the Schemes bring are overstated and oversimplified.</p> <p>Section 3.3 of the Statement of Need [APP-004/2.1], specifically paragraphs 3.3.5 and 3.3.11, describes the Government’s view that large capacities of low-carbon generation will be required to meet increased demand and replace output from retiring (fossil fuel) plants, and that “a secure, reliable, affordable, Net Zero consistent system in 2050 is likely to be composed predominantly of wind and solar”. This support for large scale solar as part of the ‘answer’ to net zero and energy security has been repeated in its recent policy documents published in March 2023, including an ambition for 70GW of solar to be operational by 2035.</p> <p>The Applicant does not make the case that solar generation alone will meet the national net zero target, but does present evidence which shows that solar is an essential part of a multi-technology generation mix, including wind, other low-carbon technologies and integration / flexible technologies such as short term and long term energy storage.</p> <p>Electricity generation on cloudy days/ during winter</p> <p>The Applicant accepts that the uncontrollable nature of the weather / seasons means that solar generation is variable. Variability can be mitigated by developing larger generation capacities, developing projects with generation profiles which are complementary to each other (as shown in Figures 8-1 and 8-2 of the Statement of Need [APP-004/2.1]), developing integration technologies such as battery storage and developing assets which are more geographically dispersed, therefore connecting to different parts of the National Electricity Transmission System (NETS).</p>

In addition, the proposed battery schemes don't solve the problem:

• Batteries help in a limited way, in that they can store a few hours of electricity; they are not capable of storing volumes of solar power from the summer to be used in the winter. We are also concerned that development on this scale will have serious adverse consequences, for the region and for the nation:

• Food & Farming: Using arable land for solar will displace the production of existing crops, food, animal feed and energy crops. It makes no sense, from an environmental perspective or from a security of food supply perspective, to cease farming here and import more crops.

• Employment: Solar farms will destroy agricultural jobs, skills and livelihoods and create very few new skilled jobs or replace livelihoods. It is likely, there will be a net reduction in employment, in an area with relatively few opportunities. There will not be any economic benefit to the already hard-pressed communities affected.

• Wildlife & Habitat: No matter what precautions and assurances, it will not be possible to deliver and install millions of solar panels, pour thousands of tonnes of concrete, as well as containers with batteries and switchgear, plus miles of fencing, without significant damage and disruption to habitat.

• Visual: The cumulative scale of the development is unprecedented, and the impact of such a development would change the character and nature of the area for 50 years or more, such a change has the potential to have a significant detrimental impact on the general health and wellbeing of residents.

• Disturbance during construction: The impact of traffic during construction and decommissioning phases, in terms of road safety, noise, disruption, damage to roads is of great concern to residents owing to the

Solar Photovoltaic (PV) panels do not need direct sunlight to generate electricity. Whilst cloudy conditions can reduce total output compared to that of a clear day the Scheme is still expected to generate significant outputs of low carbon electricity at such times. The Scheme will still operate in winter months without direct sunlight and in reduced daylight hours. Section 7.7 of the **Statement of Need [APP-004/2.1]** describes how overplanting the Scheme will enhance the generation output of the scheme at such times compared to a scheme which is not overplanted. The assumed Load Factor (the ratio of total energy used over a specific period of time to the total possible energy available within that period) for solar in the UK is 11%. This takes into account factors including weather conditions, location and site design. In consideration of these factors, the Scheme will achieve a comparative annual generation per hectare as onshore wind, as shown in Table 7-1 of the **Statement of Need [APP-004/2.1]**. The benefits of the Scheme in terms of electricity generated and emission reductions have been estimated taking into account the load factor.

Solar Panel Efficiency and Use of the Land As set out in the **Planning, Design and Access Statement** paragraph 4.3.4 **[APP-005 to APP-006/2.2]**, draft NPS EN-3 (March 2023) paragraph 3.10.8 states that: 'Along with associated infrastructure, generally a solar farm requires between 2 and 4 acres for each MW of output.' The area covered by Work Number 1 (the solar panels and balance of solar system plant) is approximately 476 hectares or 1,176 acres. This would indicate approximately 2.2 acres of land for each MW of capacity based on 531MW of installed capacity. The Scheme is therefore within the range set out in Draft NPS EN-3 and is at the more efficient end of the spectrum. The Applicant therefore respectfully disagrees with respondent statements that the Gate Burton scheme represents an inefficient use of land.

Food and Farming

It is agreed that some agricultural land will be taken out of arable production temporarily for 60 years. Land affected permanently by the development (such as construction of the substation) will be limited to small areas. Impacts to BMV have been avoided by siting permanent infrastructure outside of areas of good quality agricultural land. **Chapter 12: Socio-economics and Land Use [APP-021/3.1]** includes a breakdown of permanent and temporary losses for the different types of land use within the proposed development (including the Grid Connection Corridor), broken down by ALC area (ha) and percentage. It should be noted that a large proportion of the land is farmed for crops used to produce bioethanol or biomass and is not actually reaching the food chain.

Employment

An assessment of the impact of the Scheme on local business and local employment including agricultural jobs is presented within **Chapter 12: Socio-economics and Land Use [APP-021/3.1]**.

volume and potential size of material being moved, particularly on the local small, inadequate road infrastructure. We acknowledge the challenge climate change poses, and we are in favour of good solar development:

- Solar should be deployed where there is little else that can be done with the space – such as rooftops (in the UK only around 3% of households have solar panels)*
- To make that happen, planning should require solar on new-build commercial warehouses and domestic properties as an immediate priority, and a framework should be provided to support retrofitting of solar to existing buildings.*
- Where a solar development is considered at scale, it should be decided upon locally, not nationally – and any development must consider sustainability in its widest sense, including the impacts on sustainability of food production, sustainability of communities, impact on health and wellbeing.*

It is estimated that there are 1.5 existing FTE jobs in the DCO site related to agricultural activities that would be lost. Therefore, the 'existing employment' has been assessed as up to 2 jobs lost.

It is estimated the Scheme will require an average 400 gross direct full-time employment (FTE) jobs on-site per day during the construction period. Although these jobs are temporary, they represent a positive economic effect for a substantial period.

There will be up to 14 permanent FTE staff during the operational phase.

An element of labour force will come from the local area with the remainder beyond. It is not possible to provide exact figures as much of this will depend upon skillset and availability. There is a desire to source local workers for as many roles as possible. Local workers will not require accommodation but will also retain more of the investment spend within the surrounding area.

The Applicant has developed an **Outline Skills, Supply Chain and Employment Plan [APP-228/7.7]** which is secured by Requirement 18 of the draft DCO and aims to identify and maximise opportunities for local communities.

Wildlife and Habitat

The Scheme will provide a net gain in biodiversity and individual significant ecological beneficial effects. There are no significant adverse effects for the Scheme on ecological receptors so the Scheme overall is considered to benefit ecology. The Scheme has been so successful in avoiding impacts on Protected Species that no Protected Species licences are required for the Scheme. This is very unusual for NSIPs.

Chapter 8: Ecology and Nature Conservation [APP-017/3.1], and Appendices 8-C to 8-L [APP-127 to 136/3.3] provide details of the extensive biodiversity surveys undertaken, following best practice guidance, to establish the presence of habitats and species. The results of these surveys have then been used to inform the Scheme design, which has carefully sought to avoid and minimise adverse impacts to habitats and species during all phases of the Scheme. These embedded measures within the Scheme design are set out in section 8.9 of **Chapter 8: Ecology and Nature Conservation APP-017/3.1** and detailed for each habitat and species in **Table 8-10**.

The Framework CEMP [APP-224/7.3], Framework OEMP [APP-225/7.4], and Framework DEMP [APP-226/7.5], secure the mitigation measures required throughout the lifetime (construction,

operation and decommissioning) of the Scheme, including mitigation for ecology and biodiversity. For example, the Framework CEMP sets out the retention and protection of existing habitats, e.g., woodlands, hedgerows and other semi-natural habitats, which will ensure that wildlife will not be displaced. The Framework CEMP also includes provisions for habitat re-instatement following construction and measures to minimise hedgerow loss.

The Outline Landscape and Ecology Management Plan (OLEMP) [APP-231/7.10] outlines the landscape and ecology impact avoidance measures that would be implemented prior to, and during, construction of the Scheme, as well as the habitat restoration, enhancement, management and monitoring measures to be implemented once the Scheme is operational. Considerable enhancement measures are proposed as part of the OLEMP, with net gain proposed for the Solar and Energy Storage Park, when compared to baseline conditions, resulting in positive effects for ecology during the lifetime of the Scheme. Large areas of the Solar and Energy Storage Park have been excluded from development specifically for planting and wildlife linkages. There will be no loss of established wildlife corridors, nor fragmentation of habitats, as existing corridors, e.g. hedgerows, field margins, etc., will be retained and in many instances enhanced. Security fencing will be designed to continue to allow movement of deer across existing corridors.

A detailed assessment of the potential impacts of the Scheme on biodiversity are set out in section 8.10 of **Chapter 8: Ecology and Nature Conservation [APP-017/3.1]**. This assessment concludes that with appropriate mitigation there will be no significant adverse effects on biodiversity. With the enhancement measures included within section 8.11 of **Chapter 8: Ecology and Nature Conservation [APP-017/3.1]** the Scheme will generate beneficial effects for broad-leaved (ancient) woodland, hedgerows, terrestrial invertebrates, reptiles and amphibians, breeding and non-breeding birds, bats, Badger and other mammals, such as Brown Hare and Hedgehog).

Visual

The Schemes will potentially introduce four solar farms within or partially within the 5km study area. At the County and District Landscape Character Area scale all four schemes will lie within the Trent Valley LCA. Although inter-visibility between the schemes will be limited and views in combination typically dominated by the closest solar farm, others are likely to be visible as a distant but discernible element in the view. The relatively flat nature of the landform (albeit rising to the Willingham ridgeline) is such that no elevated views of the footprint of the solar farms will be obtained. Experience of them as an element influencing landscape character will typically be in sequence through repeated views from footpaths or roads.

The scale of addition to the landscape of the Trent Valley LCA assuming each scheme includes mitigation through hedgerow or other planting is such that solar farms will be a notable localised element rather than a key characteristic.

The Trent Valley LCA will not be defined by solar farms or become a 'solar farm landscape' in which they are the defining characteristic. Locally at the scale of LLCA 06/LLCA 07 and LLCA 08 solar farms will represent a medium magnitude of change through addition and longevity such that effects on landscape character will be of moderate significance.

Disturbance during construction

Construction traffic has been assessed in **Chapter 13: Transport and Access [APP-022/3.1]** which concludes no significant effects as a result of the Scheme, including with respect to congestion and driver delay, as well as non-motorised users e.g. severance, pedestrian amenity and fear & intimidation.

A Framework Construction Traffic Management Plan (CTMP) has been developed and is provided as **ES Volume 3: Appendix 13.E [APP-167 to 168/3.3]**. The CTMP contains mitigation to avoid and/or reduce impacts, relating to construction traffic including the delivery of materials during construction. This includes a commitment to undertake a road condition survey at various locations which includes sections of carriageway within the vicinity of the proposed access points, as well as the abnormal vehicle route for the transformer to the Solar and Energy Storage Park, covering the route between the A15/A1500 roundabout and the proposed site access on the A156. The road condition survey would be carried out pre-construction, during construction and post-construction to identify any defects that arise to highways assets/ verges during the construction phase of the Scheme for reinstatement.

In terms of noise impacts, a full noise and vibration assessment is provided in **Chapter 11: Noise and Vibration [APP-020/3.1]** of the ES which concludes no significant effects.

This assessment accounts for HGV movements on the site and public roads. Although HGV movements are likely to be noticeable, the overall resulting change in road traffic noise is identified as not significant as stated in **Chapter 11: Noise and Vibration [APP-020/3.1]**. Measures to manage construction traffic are included within **Appendix 13-E: Framework CTMP [APP167-168/3.3]**.

Rooftop Solar

Paragraph 7.6.3 of the **Statement of Need [APP-004/2.1]** analyses the potential contribution of “brownfield” solar sites to the national need for solar generation. Brownfield sites, including rooftop and other community energy systems, are likely to grow in the UK and will make a contribution to decarbonisation of the UK energy system.

However, the **Statement of Need [APP-004/2.1]** concludes in Section 7.6, that on their own, brownfield developments are unlikely to be able to meet the national need for solar.

Paragraph 8.5.10 and Section 8.5 more generally of the Statement of Need [APP-004/2.1] describe and express agreement with the Government’s view that decentralised and community energy systems are unlikely to lead to the significant replacement of large-scale infrastructure.

The Applicant therefore supports Government’s view that large scale solar must be deployed to meet the urgent national need for low-carbon electricity generation.

It would not be possible to connect the amount of electricity generated by the Scheme to the local distribution network as the network has not been designed to operate in that way. Connecting a project of this scale to the transmission network is more efficient and avoids stability issues as detailed in paragraphs 9.3.6 to 9.3.12 of the **Statement of Need [APP-004/2.1]**.

Planning system

As set out at paragraphs 1.3.1 and 1.3.2 of the Applicant’s Planning Design and Access Statement [EN010131/APP/2.2], the Scheme is defined as a Nationally Significant Infrastructure Project (NSIP) under Sections 14(1)(a) and 15(2) of the Planning Act 2008 (PA 2008). This is because it comprises the construction of an onshore generating station in England that does not generate electricity from wind and has a capacity exceeding 50MW. The PA 2008 requires a DCO to be obtained for the development of NSIPs. Further, the PA 2008 prescribes that the relevant Secretary of State is responsible for determining applications for development consent, not the local authority.

Table A2 – Applicant Response to Response on the Subject of Noise

WR	Summary	Applicant response
REP2-072	<p>Noise is relevant to the planning of this development, and again should be seen within the context of the cumulative impact of the other schemes planned. For the purpose of this report, we are focusing on the potential impact throughout the operator’s life cycle. We are convinced that given that this project is close to human inhabitants, there needs to be further evaluation carried out, to ensure that people in this area will not be impacted with resultant effects on health and wellbeing. It is a recognised fact that noise can have a huge effect on human health and wellbeing. Rurality is normally peaceful and quiet, particularly so at night, especially if distant from major roads, so this must be taken into consideration when evaluating this applicant’s scheme. We know that many people gain inspiration from the natural quiet environments, and this is particularly true for mental health and wellbeing. This draws parallels with meditation.</p> <p>During construction and decommissioning there is more tolerance to the noise as this is probably seen more as a nuisance over a short period of time. However, the sixty-year gap poses a problem to humans, as the system would not lend itself to being switched off, so the noise would be constant., even though there might be variance in the noise output. This potentiates a problem on quality of life, and may result in the effected having to move home as a consequence.</p>	<p>A full noise and vibration assessment is provided in Chapter 11: Noise and Vibration [APP-020/3.1] of the ES. The assessment is based on based on a reasonable worst-case scenario and concludes no significant effects. The Applicant disagrees that there needs to be further evaluation carried out.</p> <p>Health and Quality of Life due to Noise Impacts An assessment of health impacts has been prepared in accordance with the legislation and guidance set out in Chapter 14: Human Health [APP-023/3.1]. This includes the HUDU criteria which identifies the likelihood of neutral, positive or negative health effects drawing on the findings from other relevant chapters, including noise. The chapter concludes no significant effects as a result of noise impacts.</p> <p>Operational Phase Noise Impacts The assessment of operational noise identifies no significant effects on health and quality of life based on a continuous noise source. The noise source is based on operating at full load, which is considered to represent a reasonable worst-case. In reality, noise emissions are likely to be lower. All reasonable mitigation measures have been adopted to reduce noise emissions.</p> <p>In terms of the operational phase, as part of embedded mitigation measures, the distance between noise sources and receptors has been maximized as far as reasonably practicable. Measures to minimise potential adverse effects associated with the operational phase are outlined in the Framework OEMP [APP-225/7.4].</p> <p>As part of the design development process, Figure 2-4 Indicative Site Layout [APP-033/3.2] has been optimised to locate noise generating plant as far from sensitive receptors as practicable.</p> <p>Operational Phase Noise Assessment Identification of any distinctive tonal, impulsive or low frequency characteristics was undertaken based on section 9.2 of BS 4142:A1:2019. Paragraph 11.10.28 of Chapter 11 [APP-020/3.1] states:</p>

The Government Guidelines advise identification of the overall effect of the noise exposure. This is easy to quantify for the construction and decommissioning phase, but more difficult for the operation phase. One cannot convincingly work out the projected noise from transformers, inverters and cooling fans, given that it is only a guess, as in quiet environments we know that sound travels and is subjective. This scheme and the others are located on flatland with no hills or adequate greenery such as woodland which may absorb the sound. In the document point 11.4.10, clearly states that sound level data for transformers in reduced modes of operation is not yet available. Clarification is required around sound power differences of the transformers proposed. What would be the worst-case sound scenario that would be generated? Is there a difference in sound produced for external as opposed to internal sited transformers, and if so, how will they impact on the overall noise produced? Sound produced for equipment cooling is important (internal sited transformers) and will any generators be used in this process, or will the cooling fans be driven electrically? The more you load the transformer, the more sound is generated. So, this information is required when considering the overall noise generated from this scheme. Interestingly, there is no mention within the document of the low frequency hum that will be generated from the solar panels, and this needs to be factored in. How satisfied that the operational noise impacts will not be affected by different weather conditions, including changing wind direction which enables sound to carry further?

The Government guidance on noise states that the sound level effects cannot be seen as a single value, and that it needs to be referenced in a combination of more than one factor as noise exposure, as well as

“Plant will operate continuously so there will not be any noticeable impulsive or intermittent characteristics from plant noise emissions experienced at the surrounding receptors. Transformers within the BESS compound can have tonal features, although noise emissions from the BESS will be dominated by the cooling fans such that any tonal features of the transformers will not be noticeable. However, overall plant noise emissions will likely be experienced at receptors as a distinctive continuous and steady hum; therefore a 3 dB correction to account for noise that is ‘distinctive against the residual acoustic environment’ has been applied in determining the rating level”.

With regards to low frequency noise, Paragraph 11.9.16 of **Chapter 11 [APP-020/3.1]** states: *“Low frequency noise can be very difficult to predict with a high level of certainty and similarly hard to identify and resolve if present. This is because it can be generated by the unexpected interactions between system components and can be amplified by the geometry of the site and receptor buildings. The issue of low frequency noise will be considered throughout the Front-End Engineering Design for the substation and eliminated through design, or appropriately mitigated (isolation and attenuation measures) where appropriate and is secured through the **Outline Design Principles [EN010131/APP/2.3]**”.*

Noise predictions were undertaken based on the calculation methodology in ISO 9613-2, which assumes downwind conditions at every position with wind speed of up to 5 m/s. Noise predictions are based on a reasonable worst-case where all plant are operating externally under full load. As such, noise levels are likely to be lower than those predicted. The assessment of operational noise was based on definitions of the Lowest Observed Adverse Effect Level (LOAEL) and Significant Observed Adverse Effects Level (SOAEL) as defined in Table 11-10 of **Chapter 11 [APP-020/3.1]**. The Noise Policy Statement for England (NPSE) states: *“It is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times”.* The assessment defines the SOAEL for operational noise at residential receptors at night and is complaint with the NPSE. Table 11.17 of Chapter 11 [APP-020/3.1] identifies operational noise effects in terms of LOAEL and SOAEL. **Chapter 11 [APP-020/3.1]** follows guidance in Planning Practice Guidance Noise (PPGN), which defines the LOAEL and SOAEL *“...based on the likely average response of those affected”.* Assessing in terms of LOAEL and SOAEL assumes that windows are open as PPGN states that closing windows is a type of mitigation against noise.

Impact of the Scheme on horses and biodiversity

In terms of equestrian groups, consultation will be undertaken on the timings and duration of construction activities. As set out in the **Framework CEMP [APP-224/7.3]** which is secured by the

the number of occurrences of the various noises produced in each given period, the duration of the noise and the time of day that noise occurs. We do not see any quantifiable data to reference this within the document. As noise is subjective, this makes quantifying the impact even more difficult. In fact, no reference is made within the document to significant observed adverse effect level, lowest observed adverse effect level, or the “no” observed effect level during the operator’s cycle, which is worrying as this identifies the adverse effects on health and potential quality of life. We do not see a noise exposure hierarchy table within this document. This should be completed around the operator’s cycle. The greatest adverse effect is at night, because during the day there is always increased background noise which will dampen the extraneous sound. This makes humans more sensitive to sounds that can potentiate sleep disorders, with adverse effects on mental and physical health. How this noise relates to existing noise, whether continuous, the frequency and the pattern occurrence is particularly important and is not fully referenced. There is mention around this in the Cadna as a prediction, a statement of requirement around tonality, impulsivity and intermittency. However, much of this sets out the requirements, but does not quantify the actual impact this will have when operational on those who live near the scheme. In mitigating against this, it will be difficult to satisfy everyone affected. A point documented as an example, is the local Gainsborough Crematorium, which will be affected when the doors and windows are open. Mitigate against this, and someone else will be affected as the land is mainly flat around the scheme. We would argue that rural landscape should be protected for its tranquillity and much of this is characterised by birdsong, the very reason most of us have chosen to live in such a peaceful environment

DCO, there will be a nominated person, a Community Liaison Coordinator, during construction who can be contacted for questions. A point of contact will be available within the Contractor to liaise with the horse racing and training community and other neighbours. Horses have a similar range of hearing to people and may be startled by sudden noises. Continuous noise may stress horses if it is loud enough that they may not be able to detect a threat. There is no evidence to suggest that a low continuous noise from inverters would startle horses.

Noise impacts on biodiversity are assessed within **Chapter 8: Ecology and Nature Conservation [APP-017/3.1]** which concludes no significant effects.

Equalities Impact Assessment (EqIA)

An EqIA will be submitted at Deadline 3 which demonstrates the Applicant’s commitment to consider the interests of people who share protected characteristics, as defined by Equality Act 2010 including people with learning disabilities and the elderly.

Tinnitus is caused by repeated exposure to loud noise and can occur when people work in loud environments without appropriate protection. Noise emissions from solar farms would not cause tinnitus. Tinnitus is not caused by stress, anxiety and depression but the symptoms can cause sufferers to become stressed, anxious and depressed.

and to be one with nature. There again, how does this noise affect biodiversity, especially repeated or chronic noise? This is incredibly relevant when it comes to overall assessing schemes like this, and the cost to biodiversity. What impact will inverters have on horses?

In the overall context, this DCO application should demonstrate that they have taken into consideration the impact it would have on the vulnerable and elderly, and how the noise might affect physical and mental health conditions in the general population. This area has a higher proportion of elderly, some of these are more vulnerable than others (e. g. those living in nursing, residential homes or have care at home, as well as those who are already vulnerable because of loneliness and isolation). In the study area, there are potential people with learning disabilities. We note that there is no reference to this group of people who might be affected by noise. Are there noise impact protections in place for the entire lifetime of the scheme? From a medical point of view, some people suffer from a condition called hyperacusis. These people have acute hearing, the sound is heard in a loud way, sometimes uncomfortable or even painful, which becomes intrusive to their lives. In some people, this creates anxiety and depression, and in severe cases these people become withdrawn from daily activities, because of the sound. It is estimated that this affects about 2% of the adult population. Given the cumulative affect of all the schemes covering a population of approximately 30000 people, that would equate to 600 possible patients with this condition. Obviously, most people can deal with this, however we do not know how many within this study area are affected, and to what degree. There is also a concern around the causes of tinnitus and whether a

prolonged exposure to this type of continuous noise, e.g., the low hum or higher frequency noises could potentiate this condition. We do know that stress, anxiety and depression can cause tinnitus.

Table A3 – Applicant Response to Response on the subject of Food Security

WR	Summary	Applicant response
REP2-077	<p>If the world becomes short of electricity then we will adapt to some other form of energy. If the world becomes short of food then we will starve and die. Farmland must be used for food production not energy generation. We have huge competing demands for the use of land in this country. We've got to consider new homes, growing food, space for nature, and generating the energy we all use in our daily lives. Putting solar panels on the millions of roofs across the country means that we don't need to use as much extra land to meet our energy needs. This saves land from industrialisation, and paves the way for regenerative agriculture that will produce food and provide a much-needed home for declining wildlife species. Placing solar panels on urban rooftops protects the beauty of our landscapes. After all, it's unspoiled views of green fields and rolling hills that make the English countryside so special. Whether the land outside a village or town is considered 'high grade' or not, the loss of green fields to metal and glass is so strongly resisted by local communities because it would transform a part of the countryside that matters intimately to them. We are not against solar energy and propose for solar panels to be mandatory on all new build developments whether that be residential, commercial or agricultural and believe that there is room for larger scale PV arrays to be situated on some suitable brownfield sites. However, we also believe that we should protect our best and most versatile agricultural land to promote food security, help the rural economy and encourage agricultural practises to promote</p>	<p>Farmland and food production</p> <p>Agricultural land will not be lost on a permanent basis, except for potentially the estimated 2 ha for the substation and planting (see ES Chapter 12 para 12.7.10 [APP-021/3.1]). This is a worst case scenario as it is possible that the BESS and substation will also be removed in decommissioning.</p> <p>The majority of the site is subgrade 3b "moderate" quality land. Within the Solar and Energy and Storage Park a total of 80.4 ha is subgrade 3a, which is Best and Most Versatile (BMV). This amounts to 12% of the site. The majority of the Solar and Energy Storage Park is subgrade 3b "moderate" quality agricultural land.</p> <p>A significant proportion of the land is farmed for crops used for industrial processes, alcohol production, bioethanol, fish pellets, fish food and biofuel and is not actually producing food for human consumption.</p> <p>Rooftop Solar</p> <p>Paragraph 7.6.3 of the Statement of Need [APP-004/2.1] analyses the potential contribution of "brownfield" solar sites to the national need for solar generation. Brownfield sites, including rooftop and other community energy systems, are likely to grow in the UK and will make a contribution to decarbonisation of the UK energy system.</p> <p>However, the Statement of Need [APP-004/2.1] concludes in Section 7.6, that on their own, brownfield developments are unlikely to be able to meet the national need for solar.</p> <p>Paragraph 8.5.10 and Section 8.5 more generally of the Statement of Need [APP-004/2.1] describe and express agreement with the Government's view that decentralised and community energy systems are unlikely to lead to the significant replacement of large-scale infrastructure.</p> <p>The Applicant therefore supports Government's view that large scale solar must be deployed to meet the urgent national need for low-carbon electricity generation.</p> <p>It would not be possible to connect the amount of electricity generated by the Scheme to the local distribution network as the network has not been designed to operate in that way. Connecting a</p>

sustainable methods to tackle climate change. Next time you see pictures of adults and children suffering from starvation I hope that your conscience is clear that you made the right decision that food is more important than electricity.

project of this scale to the transmission network is more efficient and avoids stability issues as detailed in paragraphs 9.3.6 to 9.3.12 of the **Statement of Need [APP-004/2.1]**.

Table A4 – Applicant Response to Response on the subject of Flood Risk

WR	Summary	Applicant response
REP2-078	<p>Covering an area of 1,690 acres with 3.5 million square metres of inclined 4.5-metre-high glass panels will prevent the natural mitigation of surface water runoff into clay soil during periods of heavy rain and storm conditions.</p> <p>To mitigate the surface water run-off from domestic properties, even when there are road drains, which have the capacity to receive surface water from impervious driveways, roofs, etc, it is a legal requirement to comply with Defra’s Sustainable Drainage Systems (SuDS) Directive by installing one cubic metre of subterranean infiltration for every 50 square metres of impervious surface area.</p> <p>Yet, despite Defra’s concerns to prevent local flooding from impervious surfaces, there appears to be no similar requirement for the GBEP developer to prevent storm water runoff from an estimated 3.5 million square metres of glass pv panels inclined at an angle of 30 degrees, into the ditches delivering into the River Till, along with storm water from all the other large solar projects, all of which are sited in River Till catchment area.</p> <p>Using the same formula adopted by Defra’s SuDS Directive for rainwater infiltration, the GBEP developer would have to provide a storage capacity of 70,000 cubic metres of infiltration to contain the surface water run-off from its solar arrays.</p>	<p>The impact of panels on infiltration</p> <p>As stated within Section 9.9, Embedded Design Mitigation, <i>“the Outline Drainage Strategy (ES Volume 3: Appendix 9-C [APP-139 to 141/3.3] will ensure that any alteration of surface water runoff as a result of the construction of the solar PV panels, compounds and battery storage units will be mitigated by the construction of SuDS (e.g. swales and detention basins)”</i>.</p> <p>Furthermore, as stated within 9.10.61 of Chapter 9: Water Environment [APP-018/3.1]: <i>“The Solar and Energy Storage Park impermeable area will remain largely consistent with its pre-development state as PV Panels are elevated above ground. Runoff from the PV Panels will alter the existing routing of runoff. To prevent ponding occurring around the panels, a series of boundary and routing swales will be constructed to convey surface water runoff away from the panels and towards infiltration basins to ground.”</i></p> <p>Areas beneath the panels are available for infiltration, as where infiltration capacity is reached in areas between the panels, water will runoff to areas beneath the panels allowing infiltration in these areas. These are non-compacted areas, sown with a grassland species mix thus allowing for high infiltration rates.</p> <p>Rainwater mitigation</p> <p>A Flood Risk Assessment is provided in Appendix 9-D of the ES [APP-142/3.3] which concludes that there would be no increase in flooding from any source, given implementation of Appendix 9-C: Outline Drainage Strategy [APP-139 to 141/3.3] and the mitigation measures outlined in Chapter 9: Water Environment [APP-018/3.1]. Refer to Chapter 9 for a full assessment of impacts to the water environment during the construction and operational stages.</p> <p>An Outline Drainage Strategy is provided in Appendix 9-C [APP-139 to 141/3.3]. Surface water runoff across the Solar and Energy Storage Park will be discharged to ground (infiltration) through the use of sustainable drainage systems (SuDS) that attenuate and retain surface water runoff (both in terms of storage capacity and water quality treatment). Paragraph 3.3.4 provides information on planting to manage runoff from the panels along the ‘dripline’. Areas beneath the panels are</p>

The developer has provided very limited capacity, or facilities for rainwater mitigation and has given the flooding risks, or the effects on the water table of adjacent land scant consideration.

Gate Burton Energy Park Environmental Statement Volume 3 Appendix 9-D 'Flood Risk Assessment' makes scant reference to the effect the development will have on the River Till and its tributaries and appears to concentrate mainly on the flood risk to the installation and equipment within the development itself.

The developer's Flood Risk Assessment states: '7.2.2 *The proposed strategy aims to mimic the natural drainage conditions of the site as much as possible. The proposed solar PV panels will be held above ground individually on narrow diameter piled legs. This prevents sealing the ground with an impermeable surface beneath solar panels allowing rainfall/runoff to infiltrate to ground throughout the Scheme. As a result, it is considered that the Scheme's impermeable area will remain consistent to its pre-development state.*'

This is entirely inaccurate. To maintain the solar arrays and prevent shadows being cast on those behind, accessways are provided which run between the rows of panels and will inevitably become compacted and impermeable due to maintenance traffic.

Also, the area beneath the panels (up to 50% of the development area) will not be available for infiltration of rainfall which will rapidly run off the panels, eroding channels carved by erosion along the 'dripline' of the solar arrays in the impervious soil compacted by maintenance traffic.

available for infiltration, as where infiltration capacity is reached in areas between the panels, water will runoff to areas beneath the panels allowing infiltration in these areas.

The impact of the Scheme on the River Till

The impact of the Scheme on the River Till is assessed within **Chapter 9: Water Environment [APP-018/3.1]** which states: "*As no continuous foundations are in the design and given that groundwater is anticipated to be below 2m across the majority of the Order limits, the shallow, regularly spaced discrete strut PV Panel foundations, and the substation and BESS foundations are considered to have a negligible impact on groundwater flow. As such, no impediment to baseflow in the River Trent, River Till, Tributary of the Till, Marton Drain, Seymour Drain, Skellingthrope Main Drain or their tributaries are anticipated*".

In addition, the majority of the Solar and Energy Storage Park drains to Trent Port with only small areas in the vicinity of Kexby Land and Park farm within the River Till catchment.

The impact of access tracks on flood risk

A Flood Risk Assessment is provided in Appendix 9-D of the ES **[APP-42/3.3]** which concludes that there would be no increase in flooding from any Source (which includes access tracks), given implementation of **Appendix 9-C: Outline Drainage Strategy [APP-139 to 141/3.3]** and the mitigation measures outlined in **Chapter 9: Water Environment [APP-018/3.1]**. Refer to Chapter 9 for a full assessment of impacts to the water environment during the construction and operational stages.

The impact of swales on the topography of the site

It is not true that the swales would be up to 1m deep. As stated in Chapter 9: Water Environment "the swales/infiltration basins will be 600 mm deep with no steeper than 1 in 3 side slopes", therefore these features would provide minimal alterations to the existing topography and ground conditions on-site.

The cumulative impact of nearby schemes on flood risk

The potential for cumulative effects has been considered within Chapter 9: Water Environment which states that "*provided that all the mitigation measures are implemented for all schemes, then the cumulative impacts from the Scheme and any cumulative schemes are not anticipated to produce any significant effects*".

Maximum quantity of surface water produced

The Developer's FRA States: *'7.2.4 The Scheme will provide minimal alterations to the existing topography and ground conditions on-site. Any excess peak surface water runoff generated within the site boundary will be attenuated onsite before it is infiltrated to ground. Attenuation will be provided in the form of swales and infiltration basins. These features will be strategically located based on existing overland flow routes to capture runoff. Check dams will be placed strategically within swales to optimise their storage potential on steeper slopes. Where the attenuation lies within the solar field, the legs of the solar panel will be extended so that the solar panel lies above any potential flooding.'*

A 'swale' excavated to contain 70,000 litres of water one metre deep would occupy an area of 17.3 acres, which far exceeds any outline proposals for mitigation in the developer's FRA and could hardly be regarded as maintain the existing topography.

The Developer's FRA states: *'7.2.6 The proposed surface water drainage network has been designed to accommodate runoff from all storms up to and including the 1% AEP +40% for climate change. For an extreme storm event, any exceedance flows that cannot be retained by the proposed attenuation flow overland, following the existing topography, where ultimately, they will be contained within the SuDS features.'*

The proposed surface water drainage is based solely on the infiltration of the land in its current condition and its area of permeability, but again, no account has been taken of the sheltered area beneath the panels, which reduces the direct infiltration area by up to 50%

Appendix 9-C: Outline Drainage Strategy [APP-139 to APP-141/3.3] assesses the pre and post development runoff for contributing areas. This identifies the required attenuation volume (including an allowance for infiltration) for surface water management features (swales and attenuation/infiltration basins) across the site. This has been undertaken in line with Design Guidance and Policy requirements described identified in Section 3.1. This includes a rainfall uplift allowance of 40% to account for the effects of climate change.

and the concentrated runoff from the panels which will be 'spectacular' under storm conditions and concentrated at the dripline.

Properties along B1241 in Kexby Grange already experience flooding and damage to property on average every 3 years, due to overflowing of the Padmoor Drain under periods of heavy rain, storm and meltwater conditions.

Land drainage from Gate Burton, Cottam, West Burton and Tillbridge Solar 'Parks' all drain into the catchment area of the River Till, which is pumped up into the Fossey Navigation Canal at Odder to the west of Saxilby and then flows into the Brayford Pool in the centre of Lincoln.

Under storm conditions, when the water level in the river Witham is high, the Environment Agency and Upper Witham Drainage Board routinely turn off the transfer pumps from the river Till to the Fossey Canal to prevent flooding around the Brayford Pool in centre of Lincoln, causing the river Till to overflow its flood banks, inundating farmland and the access roads to the villages of Stow, Sturton by Stow, Bransby and Broxholme.

I have serious concerns about the restriction of access to remote communities by emergency services due to the increased flood risk arising from all four Solar projects.

It is impossible to consider the effects of flooding arising from Gate Burton Energy Park in isolation, since the other 3 Solar Projects are sited on the same water catchment area and will combine to exacerbate an already existing problem of inundation of farmland

and roadways to villages downstream of the river Till, where drains back up and water overflows its flood banks.

High water levels in the River Till also exacerbate flooding problems over 10 miles away, due to rising water levels in drainage dykes delivering into the Till causing a reduction in the hydraulic gradient.

When one considers the storm water runoff from 10 square miles of solar panels delivering onto the catchment area of the River Till, the flooding will be 'spectacular', and no amount of 'mitigation' by the developers will equal that already provided by the soil itself and the existing drainage systems, which have stood the test of time.

Most of the soil on the proposed development areas has a high clay content, which despite its ability to hold moisture and produce high crop yields, becomes saturated during prolonged periods of heavy rain, allowing excess water to shed off more rapidly and directly into the dykes.

Another characteristic of clay soil is its hard, impervious nature when dry, following a drought, when rainwater from a sudden storm will run off faster than it can be absorbed.

The developer's FRA States: *'7.2.3 It is considered that rainfall will mostly permeate into the ground where it falls, and that any runoff generated within arable fields collects in local low spots where it infiltrates to ground or enters a watercourse as appropriate where the site drainage interacts with one.'*

The developer has failed to understand the hydrodynamics of a concentrated flow of rainwater running off the c.4 metre-high panels onto the confined area of the 'drip line' on the compacted panel maintenance access lanes between the solar arrays, together with the sheltered, 4-metre-wide area directly beneath the panels, covering around half the acreage of the development, not being available for infiltration.

Also, the hydraulic shear force of the fast-moving water will carve its own channels, by erosion, mobilising clay, finely divided particulates, and disturbing natural vegetation, which will negatively affect aquatic invertebrates and the general ecology of the dykes, drains and the River Till.

It is a matter of concern that the Environment Agency and Upper Witham Drainage Board have not also raised their concerns regarding the increased flooding risk, which is patently obvious.

Nowhere in the developer's Flood Assessment is there an estimate of the maximum quantity of surface water running from 1,690 acres of solar panels during periods of high rainfall.

Periods of heavy rain exceeding 50mm falling in a 24-hour period are not unknown in Lincolnshire, which on my estimation would produce around 0.35 million cubic metres of surface water run off from the panels, much of which would not be absorbed along the drip line of the panels, particularly when the topsoil becomes rapidly saturated. Even if Defra's 70.000 cubic metre SuDS infiltration capacity formula was applied to the installation, this would be completely inadequate and rapidly exceeded.

In support of my concerns, I hereby attach a copy of my letter to Environment Agency's Director of Operations for Lincolnshire and drone photographs of the flooding which occurred to the southeast of Sturton by Stow in November 2019 and is not an isolated incident.

Table A5 – Applicant Response to Response on the subject of the role of Solar in Energy Provision and Decarbonisation

WR	Summary	Applicant response
REP2-080	<p><i>We recognise the need to decarbonise and that solar has a role to play, however, the energy benefits it delivers are limited, owing to:</i></p> <ul style="list-style-type: none"> • <i>The low load-factor of solar in the UK, between 9-11%, because the UK is one of the lowest areas of solar gain, globally.</i> • <i>The mismatch between when solar produces the bulk of its power (summer days) and when it is needed.</i> • <i>Periods with excess solar energy, leading to significant curtailment (wastage) from having insufficient capability to store solar energy from the summer for use in the winter.</i> • <i>The resultant need for the full capacity of solar to be covered by other forms of generation to meet peak winter demand.</i> <p><i>In terms of those benefits, the developer has persisted in providing over simplistic and misleading information as part of its application, regarding the role solar power can play in the future of electricity supply, for instance by stating that the UK has high areas of solar gain, providing the impression that the scheme can power 160,000 homes, and overstating the role solar can play in security of supply.</i></p> <p><i>It is crucial that the limitations to benefits are fully understood, particularly when weighing up the harms arising from ground mounted solar development at such a scale. This harm stems from the fact that solar has an extremely low power density, which means that a solar</i></p>	<p>The Applicant disagrees that oversimplistic and misleading information has been provided regarding the role solar can play in the future of electricity supply.</p> <p>General Comment. Section 3.3 of the Statement of Need [APP-004/2.1], specifically paragraphs 3.3.5 and 3.3.11, describes the Government’s view that large capacities of low-carbon generation will be required to meet increased demand and replace output from retiring (fossil fuel) plants, and that “a secure, reliable, affordable, Net Zero consistent system in 2050 is likely to be composed predominantly of wind and solar”. This support for large scale solar as part of the ‘answer’ to net zero and energy security has been repeated in its recent policy documents published in March 2023, including an ambition for 70GW of solar to be operational by 2035. Solar is important because it converts free, zero-marginal carbon emissions energy from the sun into useful electricity and this means that other forms of generation, particularly those which may have higher load factors but which do not zero-marginal carbon emissions, are needed less and less.</p> <p>Solar is now a leading low-cost generation technology and Figure 10.3 of Statement of Need [APP-004/2.1] shows that on a levelised cost of energy basis (the estimated cost per unit of energy across the productive lifetime of an electricity generating station), large scale solar is already cheaper than offshore wind, and the Government’s projections are that it will remain cheaper in the future. In 2021, Great Britain sourced 42% of its electricity from renewables, of which approximately 9.4% was from solar.</p> <p>Section 8.8 of Statement of Need [APP-004/2.1] describes the energy security benefits of solar generation when it is deployed alongside a portfolio of wind.</p> <p>Load Factor Statement of Need [APP-004/2.1] makes the case for the significant benefits brought forward by solar generation in regard to decarbonisation, security of supply and affordability, based on the average national load factor of c.10-11%. The Applicant had provided at [APP-XXX] evidence which supports the fact that the scheme will supply the same amount of energy as is consumed by approximately 160,000 homes each year in the UK.</p>

scheme of the capacity proposed by the Gate Burton Energy Park uses a colossal amount of space.

Using so much land has a tremendous, concentrated impact on the immediate area and its people, but consuming such huge areas of land also puts a wider pressure on land use which may serve to impede decarbonisation by competing for land needed for direct decarbonisation. The UK Climate Change Committee asserts we will need to lose some of this land to plant trees (6CB calls for between 30-70kha of tree planting per year) and develop peatland to sequester carbon. Land will also be needed for energy crops, there are fears that climate change will change the yields of UK farmland and rising sea levels have the potential to further impact farmland. All of which is before any further expansion of urban development is considered.

Quite simply, over committing agricultural land to such inefficient land use as ground mounted solar could very quickly become a cause for regret.

With regard to energy policy, the landscape with regard to solar is evolving. While solar is not part of the UK Government's Ten Point Plan for Decarbonisation, the ambition for solar has grown considerably between 2022 and 2023, now seeking to achieving 70GW of installed capacity by 2035. Similarly, the National Policy Statements for energy are in transition. The existing NPS suite makes little reference to solar other than pointing out the difficulty associated with intermittent generation. Even the revised draft NPS suite from 2023 does not foresee large-scale ground mounted solar of the size proposed for Gate Burton Energy Park.

What is strongly consistent, however throughout all Government energy policy and strategy

Curtailment and “back-up”

REP2-080 cites the 2022 Future Energy Scenarios (FES 2022) document as evidence that there will be large amounts of curtailed (wasted) energy in the future. FES 2022 describes a number of forward-looking scenarios and states (at p155) that “High levels of renewable capacity combined with low flexibility baseload generation results in material levels of curtailed energy from around 2030.” However FES 2022 also states potential remedies which are consistent with the future view of demand and supply described in the Statement of Need [APP-004/2.1] at Chapters 6 and 7, these are:

P11: Strategic coordination and whole system thinking, especially across the electricity and hydrogen sectors, is required to achieve decarbonisation targets and avoid unmanageable network constraints and potential curtailment.

P101: A range of flexible technology is needed to integrate this generation output from weather dependent renewables, ensure supply is reliable and minimise curtailment

P130: surplus electricity can be used to produce hydrogen at times of network congestion. High levels of electrolysis [would] contribute to ... low ...levels of curtailed energy

P184: To avoid curtailment, flexible solutions such as energy storage, interconnectors, Demand Side Response (DSR) or electrolysis could be used to maximise the use of renewable electricity National Grid ESO published their 2023 Future Energy Scenarios report in July 2023 and the themes described above are also included in the 2023 report, additionally NGESO state that:

Increasing implementation of smart EV charging is an essential action to reduce curtailment of renewables (p218). Further, curtailment is anticipated to peak in the 2030s (FES 2023, Figure FL.18) as flexible generation, short term and interseasonal storage deployment catches up with renewable deployment. NGESO's predictions are that curtailment will fall in all scenarios from the 2040s onwards.

Solar Panel Efficiency: Installed Capacity and Electricity Generated

See Table A1 for response on rooftop solar.

In terms of efficiency of output, some representations have suggested that solar panels are ‘inefficient’ because the amount of electricity generated is a low percentage of a panel's installed capacity and that this is leading to the developer over-estimating the benefits of the Scheme.

The installed capacity of a solar park indicates its nominal power output under Standard Test Conditions. Installed capacity does not describe how much electricity is produced at a particular solar park in a specified period because the key drivers of output at any time, are prevailing

announcements, as well as the existing and draft NPS suite, is the important principle of efficient land use, something that is increasingly recognised as being vital as UK land faces tremendous pressures from all quarters. The “Skidmore Review” also echoes this with a call for a “Mission for Rooftop Solar”, recognising the increasing importance of managing land use as a part of decarbonisation, and the need for a clear plan on how we manage competing demands on land.

Therefore, there is no explicit policy case for such large-scale ground mounted solar development in the UK. Quite apart from this, there is growing evidence that the UK can meet its 70GW solar capacity ambition from sufficient available rooftop solar capacity on suitable commercial and domestic buildings, with none of the same adverse consequences of ground mounted solar, and fewer implications on National Grid infrastructure requirements.

Developers have claimed that the installation of large-scale ground mounted solar is the only way to install solar capacity at the rate the climate emergency demands, however more solar could be installed on new-build house rooftops, more quickly than the development of a project at the physical scale of Gate Burton, with all the associated impacts and environmental considerations that are required.

All of this renders large-scale ground mounted solar development unnecessary. This means that should the GBEP not be approved, the UK can still easily meet its ambition to install 70GW of solar capacity

weather conditions and the time of day / seasonality. Therefore, the Applicant discusses the benefits of the Scheme in relation to the expected annual generation of the Scheme, not installed capacity.

Calculations of the benefits of the Scheme have been undertaken considering all factors mentioned here, including expected solar irradiation incident at the site, degradation rate of panels over time, seasonal factors and weather. To help visualise the significant benefits brought forwards by the scheme, the annual electricity output of the scheme has also been converted into an equivalent number of properties, the annual energy demands of which could be generated by the Scheme.

In terms of the area of the land vs. power density, as set out in the **Planning, Design and Access Statement** paragraph 4.3.4 [APP/2.2], draft NPS EN-3 (March 2023) paragraph 3.10.8 states that: 'Along with associated infrastructure, generally a solar farm requires between 2 and 4 acres for each MW of output.' The area covered by Work Number 1 (the solar panels and balance of solar system plant) is approximately 476 hectares or 1,176 acres. This would indicate approximately 2.2 acres of land for each MW of capacity based on 531MW of installed capacity. The Scheme is therefore within the range set out in Draft NPS EN-3 and is at the more efficient end of the spectrum. The Applicant therefore respectfully disagrees with respondent statements that the Gate Burton scheme represents an inefficient use of land and statements suggesting that the Gate Burton scheme would use 5 acres of land per MW of installed capacity are incorrect. The Scheme presents a much more efficient use of land than suggested.

The electricity generated by the Scheme will depend on the final layout of the Scheme and the detailed technology choice, but the minimum yield from the Scheme based on the indicative layout proposed at ES **Figure 2.4 [APP-033/3.2]** is predicted to average 449,800MWh per annum¹. This would provide a significant contribution to the decarbonisation of the electricity grid. Electricity generated by the Scheme will be low cost, predictable and will not be reliant on volatile fossil fuel markets, thus the Scheme will support British energy security of supply and affordability, as well as reducing electricity costs for consumers. The Scheme will also incorporate a Battery Energy Storage System (BESS), which can store electrical energy when it is not needed and release it when it is needed. Electricity storage of this nature enables further decarbonisation of the National Grid and increases security of supply as more renewable energy facilities are connected to the grid.

National Policy Statements

Draft National Policy Statement (NPS) EN-1 (March 2023) paragraph 3.3.20 states that the Government's: '*analysis shows that a secure, reliable, affordable, net zero consistent system in 2050 is likely to be composed predominantly of wind and solar.*' This states the Government's confidence that the future electricity system can operate with predominantly wind and solar energy and is based on analysis of electricity systems, including key features of both technologies such as their operation during different weather and seasonal conditions.

Rooftop Solar

The Applicant agrees that solar on rooftops can contribute to the renewable energy mix for the UK.

The Total Installed Capacity of solar installed through the Feed-in Tariff scheme was 5.14 GW since April 2010². This quantum is despite changes to enable installation of solar panels without planning applications for many buildings and financial incentives. Comparatively, the four solar DCO applications currently accepted by PINS for Examination would provide over 2 GW, alone providing 40% of the total rooftop solar quantum installed nationally under the Feed-in Tariff scheme.

The British Energy Security Strategy supports a near 5-fold increase in deployment of solar technology in the UK from 14 GW at present to 70 GW by 2035. This target is set recognising the abundant source of solar energy in the UK and that solar panels have reduced in cost by 85% over the last ten years.

However, there are constraints that slow, or in some cases prevent, the rolling out of rooftop solar at scale.

These constraints can be categorized into three separate areas: physical; legal and scalability. For instance, a roof may not be strong enough to take a solar installation and may need to be replaced; the roof may not provide the right pitch or may have features that prevent installation; there may be a landlord and tenant who are not aligned on using the roof space and, ultimately, the biggest roofs are likely to be of single MW scale. To deliver the 56 GW required by 2035 would require the installation of 56,000 of these large single MW schemes. Each scheme would require its own connection but connections may not always be viable, especially in urban areas if electricity systems are congested.

Section 7.6 of the **Statement of Need [APP-004/2.1]** demonstrates that in order to meet National Grid's projections of required solar capacity in 2050, a significant proportion of total UK land used by industrial or commercial units would be required. Given the likelihood of at least some of the constraints described above reducing the viability of at least some rooftop schemes, it is clear given the required increase in UK solar capacity that both rooftop and large-scale solar projects need to be delivered.

Table A6 – Applicant Response to Written Representation – Landscape

WR	Summary	Applicant response
REP2-073	<p><i>The Gate Burton Energy Park Ltd has impacts on the landscape character and visual amenity of the proposed site and surrounding landscape. The 7000 Acres Group is concerned that the Applicant has not fully assessed the harms associated with the proposed development. The following areas for discussion cover certain issues where questions are left unanswered and evidence is questioned.</i></p> <p>Planning Issues</p> <p><i>The importance and precedence of Local Impact Reports is raised in relation to section 105 of the Planning Act 2008.</i></p> <p>Landscape and Visual Impact Methodology</p> <p><i>Inaccuracies and anomalies in the Zone of Theoretical Visibility are considered.</i></p> <p>Landscape and Visual Effects</p> <p><i>Impacts of the Gate Burton Energy Park Ltd on Landscape Character and Visual Amenity are highlighted. Negative impacts are caused due to failings in the Applicants Landscape Character Baseline. The submitted Landscape and Visual Impact Assessment shows significant harm for both Landscape and Visual Effects.</i></p> <p>Mitigation</p> <p><i>This is based on the successful implementation of vegetation. The flaws in this approach are discussed and negative impacts on landscape character highlighted. Extensive removal of existing vegetation and the impact of localised browsing compound the negative effects.</i></p> <p>Biodiversity and Biodiversity Net Gain</p>	<p>Landscape and Visual Impact Methodology</p> <p>The 1.5m observer height is a standard human eye height based on the midpoint of average heights for men and women and recommended in Paragraph 6.11 of the ‘Guidelines for Landscape and Visual Impact Assessment’, 3rd Edition, 2013, published by the Landscape Institute and IEMA. These guidelines also state in Paragraph 6.10 that “<i>The ZTV mapping is the desk study component of the visibility analysis. In reality many factors other than terrain will influence actual visibility. Other landscape components that may affect visibility, for example buildings, walls, fences, trees, hedgerows, woodland and banks, can in theory be added to digital models that are based on terrain but this is difficult to achieve accurately, especially for a large study area. Their effects are best judged by field surveys that can examine and record their location, size and extent, and their effect in screening visibility at key points ...</i>”.</p> <p>The outcome of the Zone of Theoretical Visibility mapping (ZTV) at 1.5m eye height has been considered sufficient as the majority of locations within the order limits and in surrounding areas show theoretical visibility. The mapping of other observer heights would not have contributed any further useful information to this theoretical exercise. Extensive site surveys of the study area and beyond have been carried out following the production of ZTV’s to identify viewpoints for a range of receptors as described and assessed in ES Chapter 10: Landscape and Visual Amenity [APP-019/3.1].</p> <p>Landscape and Visual Impact Assessment Methodology:</p> <p>The landscape and visual impact assessment follows the ‘Guidelines for Landscape and Visual Impact Assessment’, 3rd Edition, 2013, published by the Landscape Institute and IEMA. The methodology is clearly described in ES Appendix 10-B LVIA Methodology [APP-145/3.3]. The Applicant disagrees that the Applicants Landscape and Visual Impact Assessment is unreliable, and the qualities of the landscape character have not been assessed. The landscape baseline has been described and assessed in detail in ES Chapter 10: Landscape and Visual Amenity [APP-019/3.1], ES Appendix 10-C Landscape Baseline [APP-146/3.3], and Appendix 10-D Landscape Assessment [APP-147/3.3].</p> <p>Study Area:</p>

The Applicant does not explain how they will achieve improvements in biodiversity and meet targets of biodiversity net gain. The impact of landscape change is discussed in relation to biodiversity and the feasibility of the Applicants claims assessed. Soils. The ALC findings supplied by the Applicant are not complete or robust. Damage to soils during construction is highlighted. Long term soil quality cannot be fully assessed as the Applicant has not provided a soil management plan.

Mental health and wellbeing

The positive impact of landscape and green space on mental health and wellbeing is explored. Loss of these benefits has a harmful effect. The Gate Burton Scheme (GBS) proposes to infringe the use of Public Rights of Ways (PRoW's).

Tranquillity

Peace and quiet is experienced by residents at the site. The GBS will disturb this peace.

The initial 'Area of Search' extended 5km from the Order limits to the north, south and west and 10km to the east. This was informed by consideration of the location and scale of the Scheme and desk-based analysis of mapping and aerial photography. The final extent of the study area was determined following extensive site surveys. The concluded study area extends approximately 2km around the Order limits of the Grid Connection Corridor, 3km west of the Order limits and 5km to the north, east and south. The varying radii respond to the topographical setting of the Scheme, existing screening provided by pockets of woodland, extensive vegetation along field boundaries and roads as well as changes in landform as described above. Elevated ground further to the east within approximately 10km from the Order limits of the Scheme, including the Lincoln Cliff, has been included as part of a wider study area to assess long distance landscape and visual effects as well as cumulative effects.

Area of Great Landscape Value:

Information regarding the designation of the AGLV within West Lindsey has been difficult to obtain, and an evidence base for the designation is not available. If this was able to be obtained from West Lindsey District Council (WLDC) this would have assisted the assessment process to understand what are the elements / key characteristics that make up the 'distinctive value', particularly when the Policies Map for the Central Lincolnshire Local Plan 2023 shows a number of independent AGLV's at various locations across Lincolnshire.

In the absence of this information, the applicant created a number of local landscape character areas (LLCA), which provide relevant localised key characteristics in order to assess landscape effects of the Scheme. These LLCA's include sections of the AGLV south of Gainsborough, which have been assessed in terms of landscape effects in ES **Volume 1, Chapter 10: Landscape and Visual Amenity [APP-019/3.1]**. It also includes a landscape assessment of the AGLV in its own right at construction and operation. This determined that landscape effects on the key characteristics (as identified by the applicant) of the AGLV within the study area, which are "predominantly small size and medium deciduous woodlands scattered across the area including some ancient woodland and semi-natural woodland which increases the diversity of the predominantly arable landscape" as described in ES **Appendix 10-C Landscape Baseline [APP-146/3.3]**, are minor adverse as those key characteristics will not be affected by the Scheme.

The AGLV along Middle Street / B1398, sometimes referred to as Lincoln Cliff, was part of the 10km wider study area as outlined above. This separate AGLV further east will not be affected by the Scheme as it will not be discernible as illustrated in Photomontage 7 included in **Figure 10-16 Photosheets 1-23 Compressed [APP-079 to -082/3.2]**, and Photomontages C4 and C5 included in **Figure 10-17 Photosheets Cumulative C1-C5 Compressed [APP-083 to -086/3.2]**.

Landscape Character

ES Volume 1, Chapter 10: Landscape and Visual Amenity [APP-019/3.1] contains a detailed description of the landscape baseline which has been informed by desktop research and extensive site surveys. It also includes an assessment of effects on the landscape character at national, regional, county/district and local level as well as in Areas of Great Landscape Value (as far feasible, refer to statements in relation to AGLV's above).

The Applicant agrees that the Scheme will result in the loss of some key characteristics, namely agricultural character and a reduction in a sense of openness given the change of land use and the introduction of new built features in the landscape. However, the landscape mitigation proposed will help integrate the Scheme into its setting. This will be achieved by improving existing hedgerows and the planting of new hedgerows, some of which are interspersed with trees, to enhance the local hedgerow network. The establishment of advanced planting in selected locations will also help to integrate the Scheme from the start of construction works. The exclusion of solar panels between Gate Burton estate and Burton Wood, the offset of panels from roads and existing hedgerows, the type of solar panels used (non-tracker panels) as well as the exclusion of panels from areas close to residential properties will reduce landscape effects as well as visual effects.

Chapter 10: Landscape and Visual Amenity [APP-019/3.1] includes an assessment of the effect of construction activity including traffic.

In terms of the comment that “*detail regarding vegetation loss have not been provided*”, the ES **Vegetation Removal Plan [APP-093/3.2]** sets out the extent of the vegetation removal that will take place within the solar and energy storage park site and grid connection corridor, and is secured by the Outline Landscape and Ecological Management Plan [APP-231/7.10].

Mitigation

Careful consideration of the locations of any proposed planting has taken place, including offsets to maintain openness of views, using planting to screen infrastructure, reinforcing existing vegetation and strategic planting to mitigate any potential effects of glint and glare on sensitive receptors. In addition, areas of advanced planting are being considered in a number of locations to ensure planting is effective at screening at an early stage in the project. The Scheme has been designed to include extensive embedded mitigation and the LVIA addresses any residual effects which cannot practicably be mitigated further. A scheme of this type and scale will inevitably have some significant adverse effects which require weighing in the planning balance.

Further information is available within ES **Chapter 10: Landscape and Visual Amenity [APP-019/3.1]**, **Outline Landscape and Ecology Management Plan (OLEMP) [APP-231/7.10]**, **Figure 10-22 Vegetation Removal Plan [APP-094/3.2]**, and **Figure 10-23 Outline Landscape Masterplan [APP-095/3.2]**.

Biodiversity and Biodiversity Net Gain

In terms of habitat connectivity, when designing the Scheme, the Applicant has carefully considered the proposed green infrastructure, to ensure that ecological connectivity is maintained and enhanced across the Scheme. As noted by the Forestry Commission, the position of Burton Wood, Quilters Wood and Long Nursery Wood are currently isolated in the landscape by existing agricultural land use and practices. Figure 10-23 in Annex A of the **Outline Landscape and Ecology Management Plan (OLEMP) [APP-231/7.10]** illustrates the habitat creation and specific management prescriptions for each habitat type and shows how the Scheme will enhance ecological connectivity between Burton Wood, Quilters Wood and Long Nursery Wood. The prescriptions pertinent to the three woodland parcels are summarised below, along with a signpost to relevant section of the **OLEMP [APP-231/7.10]** which provides further detail:

- Natural Regeneration Buffer to Woodland (Section 3.7). An area 15m wide adjacent to Burton Wood will be encouraged to naturally regenerate. This will increase biodiversity of the ancient woodland, importantly protecting the soils of the adjacent buffer and allowing the natural colonisation of woodland plants. This will provide an opportunity to observe the gradual structural transition from grassland to canopy woodland habitats, while providing additional buffering to the existing woodland.
- Hedgerows (Section 3.4). Existing hedgerows provide important wildlife corridors. Hedgerows will be allowed to grow tall and wide (minimum of 3m high), with infilling where gaps currently exist. Any new sections of hedgerow planted will be in double staggered rows and use native species of local provenance (see Table 2). This enhancement of the existing hedgerow network, particularly between woodland parcels will improve ecological connectivity and wildlife corridors.
- Grassland (Section 3.6). Species rich grassland corridors alongside existing hedgerows and woodlands, will establish a of diverse sward of grasses and herbs, benefiting a wide range of biodiversity. This will promote enhanced ecological connectivity across the Scheme, providing stronger and more resilient links between existing habitat parcels.

The Applicant considered that the measures outlined above and set out in the **OLEMP [APP-231/7.10]** provide an enhanced ecological link between these three woodland parcels, which will improve their resilience, connectivity and biodiversity. This also applies to the other woodland parcels mentioned by the Forestry Commission.

It is not true that the ‘the extensive groundworks for the cable route will have a negative impact on biodiversity, and that the operation of the Scheme will cause continual disturbance’.

Chapter 8: Ecology and Nature Conservation [APP-017/3.1], and Appendices 8-C to 8-L [APP-127 to 136/3.3] provide details of the extensive biodiversity surveys undertaken, following best practice guidance, to establish the presence of habitats and species. The results of these surveys have then been used to inform the Scheme design, which has carefully sought to avoid and minimise adverse impacts to habitats and species during all phases of the Scheme. These embedded measures within the Scheme design are set out in section 8.9 of **Chapter 8: Ecology and Nature Conservation [APP-017/3.1]** and detailed for each habitat and species in Table 8-10.

The **Framework CEMP [APP-224/7.3], Framework OEMP [APP-225/7.4], and Framework DEMP [APP-226/7.5]**, secure the mitigation measures required throughout the lifetime (construction, operation and decommissioning) of the Scheme, including mitigation for ecology and biodiversity. For example, the Framework CEMP sets out the retention and protection of existing habitats, e.g., woodlands, hedgerows and other semi-natural habitats, which will ensure that wildlife will not be displaced. The Framework CEMP also includes provisions for habitat re-instatement following construction and measures to minimise hedgerow loss.

A **BNG assessment** is included as part of the DCO application **[APP230/7.9]**. The assessment includes the anticipated percentage of biodiversity net gain that is proposed for the Scheme alongside indicative habitat management and delivery mechanisms. DEFRA's Biodiversity Metric 3.1 has been used to quantify gains and demonstrate developmental benefits. The **Outline Landscape and Ecological Management Plan (LEMP) [APP-231/7.10]** provides details of how habitat will be enhanced, created, managed, monitored and maintained for the lifetime of the Scheme (60 years) and is bespoke to this project and site characteristics. The Outline LEMP is secured through Requirement 7, in Schedule 2 of the draft DCO **[APP-215/6.1]**.

Soils

The Applicant disagrees that the ALC report is not fully in line with the MAFF 1988 guidance. A semi-detailed soil survey was carried out in accordance with the MAFF (1988) guidelines which is the current methodology for ALC within the Solar and Energy Storage Park. Some 307 auger samples were taken over the 652 ha site. As it is common ground that ALC grade will not be changed, this provides a suitable level of detail. See the revised Statement of Common Ground **[REP-009 to 010/4.3C]** which confirms that Natural England are content with the sampling strategy.

It is not true that “the land within the cable corridor is at least 50% BMV land”. As stated in the Appendix 12-C Agricultural Land Classification Report [APP-162/3.3] it is estimated that 43% of land within the grid connection corridor is BMV land.

In terms of the point which states “the Applicant has not explained the use of BMV land for the proposed development” as explained within **Chapter 12: Socio-economics and Land Use [APP-021/3.1]** there would be a permanent loss of approximately 2 ha of BMV land as a result of the Scheme due to permanent planting and siting of the BESS. The impact on BMV land has been minimised through locating permanent development on lower quality land where possible. It will be further minimised through implementation of the **Soils Resource Management Plan** to protect soils (see **[APP-233/7.12]** for the Outline Soils Resource Management Plan).

In terms of Policy S67 please refer to the Applicants response in LCC1 3.2 in the **Applicants comments on Local Impact Reports [REP2-044]**.

In response to the point that “The Applicant has not provided a soil management plan” this is not true, the Outline Soil Management Plan is provided at **[REP-030]**.

Mental Health and Wellbeing

Safe access will be maintained along and across existing Public Rights of Way (PRoW) during the construction, operation and decommissioning phases of the Scheme. There will be no PRoW closures and a limited number of temporary PRoW diversions will be implemented around the Grid Connection Corridor works area when the cables are installed. Further details are set out within the **Outline PRoW Management Plan [APP-229/7.8]**.

Effects on views from PRoW as a result of construction, operation and decommissioning of the Scheme are set out in **Chapter 10: Landscape and Visual Amenity [APP-019/3.1]**. Adverse visual effects during construction and decommissioning (some of which are significant) would be experienced from PRoW proximal to the Solar and Energy Storage Park and Grid Connection Route. During Operation once new and strengthened hedgerows and tree and shrub belt planting has reached semi-maturity, this will screen or filter the Scheme in the majority of views; however a small number of significant effects remain at Year 15 for the Solar and Energy Storage Park. Views from PRoWs along and across the Grid Connection Corridor and the wider PRoW network will experience no significant effects during operation.

Tranquillity

ES Volume 1, Chapter 10: Landscape and Visual Amenity [APP-

019/3.1] assesses and describes the effects of the Scheme on the landscape character and the visual amenity. Section 10.11 Residual Effects and Conclusions, states the remaining effects following the establishment of proposed landscape mitigation measures. The assessment concludes that there will be direct and significant alterations to the local landscape character, where the Gate Burton Energy Park will be located and indirectly on sections of adjoining local landscape character. However, the assessment concludes that the wider landscape character, including at regional or county level, will not be affected.

Table A6 – Applicant Response to Response on the subject of Agricultural Land Classification

WR	Summary	Applicant response
REP2-070	<p><i>The group does not have confidence in the Agricultural Land Classification data published by Land Research Associates Ltd for the Gate Burton Energy Park Project. DEFRA assessment of Best and Most Versatile (BMV) land anticipated a moderate likelihood of BMV land in this region (i.e. 3a and above). The Land Research Associates Ltd results currently indicate that only 15% of land for GBEP is BMV or non-agricultural, which clearly helps the case for development, as the draft National Policy Statement for Renewable Energy Infrastructure (NPS EN-3) reiterates that BMV crop land should be avoided where possible.</i></p> <p><i>According to the British Society of Soil Science (BSSS) grading of land using the ALC system is not straightforward. For individual development sites this normally involves a detailed ALC field survey, according to the MAFF 1988 ALC guidelines. Proficiency in the conduct of an ALC survey requires</i></p>	<p>ALC Methodology</p> <p>As set out within Appendix 12-C [APP-162/3.3] the Agricultural Land Classification (ALC) was carried out by Land Research Associates who have over 29 years' experience in conducting ALC surveys. The ALC Report presented in Appendix 12-C [APP-162/3.3] is an objective assessment by an experienced soil scientist who is a member of the British Society of Soil Science (BSSS). BSSS Code of Conduct requires that all members discharge their professional responsibilities with integrity and due scientific and technical competence. The survey was in accordance with MAFF (1988) guidelines which is the current methodology for ALC.</p> <p>The ALC is based on the long-term physical limitations of land for agricultural use. The ALC methodology is based on climate, site and soil characteristics and the important interactions between them. The current use, or intensity of use, does not affect ALC grade. There is no requirement or need to spread an ALC survey over months.</p> <p>The current agricultural use, or intensity of use, does not affect ALC grade. Yield mapping data does not, therefore, have a role in ALC. From the Applicant's knowledge of the site, a large proportion of the land is farmed for crops used for industrial processes, alcohol production,</p>

knowledge and experience of field soil survey and the interpretation of soil, topography and climate data. There are comparatively few experts capable of carrying out ALC to a sufficient professional standard. For this reason, BSSS has published a professional competency document that outlines the qualification, knowledge, skills and experience required to carry out ALC. Skills and knowledge is required to fully meet the minimum competency standards of the foundation skills in soil investigation, description and interpretation to demonstrate the ability to investigate, sample, describe and interpret soils in the field in a consistent manner and to professional standards. This is essential to demonstrate competence in ALC and will have been gained from a number of years of field experience of soils. Island Green Power have already identified that their soils consultants were inconsistent because the “updated and final” results of the West Burton 4 data were massively revised, from 19.4% to 100% BMV and the area was removed from the development (this was also the area with most vocal local opposition).

Land Research Associates (LRA) has undertaken an ALC over the whole area. Some small areas were not surveyed, but these are not in themselves likely to change the overall scale of BMV. The survey was at a reduced scale from the 1 borehole per hectare recommended in TIN049 and the report surveyed the land at approximately 1 borehole per 2 hectares. It is normally expected that the ALC survey be undertaken in line with the MAFF 1988 guidelines and TIN049. These documents set out the precise methodology by which the ALC survey should be undertaken, with auger bore sampling at 1 hectare intervals and a suitable number of soil pits dug to determine the precise nature of the soil(s). The findings of the ALC report essentially identify over 80% of the site as Grade 3b. The majority of any BMV land is shown to be Grade

bioethanol, fish pellets, fish food and biofuel and is not actually producing food for human consumption. However that is not relevant for the purposes of identifying ALC grade.

In terms of the suggestion that the climate data used is out of date, the MAFF ALC methodology uses the Climatological Data for Agricultural Land Classification, published by The Met Office in January 1989. This data set is available from Natural England’s website. The data set ensures that all ALC surveys use the same data and therefore they should determine the same ALC grade on the same land irrespective of who carries out the survey. There are no plans from Government to review or amend the ALC system, so the data set used remains that required to be used for ALC. Therefore, the ALC survey has been completed in accordance with this current methodology.

The Applicant disagrees that the ALC report is not fully in line with the MAFF 1988 guidance. A semi-detailed soil survey was carried out in accordance with the ALC methodology MAFF (1988) guidelines which is the current methodology for ALC within the Solar and Energy Storage Park. Some 307 auger samples were taken over the 652 ha site. As it is common ground that ALC grade will not be changed, this provides a suitable level of detail. See the revised **Statement of Common Ground [REP-009 to 010/4.3C]** which confirms that Natural England are content with the sampling strategy.

In accordance with the comments from Natural England, in areas where BMV land was identified additional sample points were undertaken. This can be seen on the Survey Observations plan in the ALC report, **Appendix 12-C [APP-162/3,3]**. This enabled accurate boundaries to be drawn between BMV and lower quality land.

It is noted that from the Details of Observations from Each Sampling Point contained within the **ALC report [APP-162/3.3]** 20 auger samples were identified as Wetness Class I or II yet were classified as subgrade 3b. That is correct. The ALC identifies the most limiting factor and the final column of the table sets out the main limitation. In those cases, the limitation was recorded as “D”, droughtiness.

The Wetness Class is only part of the analysis. As set out in Table 6 of the ALC Guidelines, in an area of less than 126 Field Capacity Days, it is the soil texture in combination with the wetness class that will identify the ALC grade. As shown below, with a WCIII sandy clay loam (SCL) soil the grade will be Grade 3a, but a Heavy Clay Loam (HCL) soil in the same WC will be Grade 3b.

3a. As set out above the ALC report is not fully in line with the MAFF 1988 guidance, which recommends auger borings at 1 hectare intervals, and soil pits dug in representative soils types. The report is more in line with a reconnaissance survey. We recommend that a full and complete independent survey is carried out in accordance with MAFF 1988 and TIN049 guidance.

The data provided by Land Research Associates Ltd is inconsistent in the Wetness and Droughtiness Assessment. They state that the land has three main soil types: sandy soils; loamy over slowly permeable soils and heavy slowly permeable soils. They also state that the site is a combination of subgrade 3a and 3b agricultural quality, variably limited by wetness and droughtiness restrictions. They have classified 20 instances out of 316 observations where the wetness class is either I or II but they have classified the land as grade 3b. They have further classified 60 occurrences where the land is Wetness Class III but has been classified as grade 3a. Therefore if some entries are categorised as 3a then all similar entries should also be categorised as 3a and not 3b. This would significantly change the overall classification of land to be Best and Most Valuable for the majority of the site. In order to resolve this issue an independent soil analysis needs to be conducted by a BSSS approved surveyor to establish the accurate picture with no inconsistencies in the interpretation of the results.

Aside from the sub-classification of land between 3a and 3b, there is also debate within the Government that all grade 3 land should be included in BMV.

The climatic data that has been used is based upon the Climatological Data for Agricultural Land Classification, Meteorological Office, 1989. As we all know there has

Table 6 Grade according to soil wetness - mineral soils

Wetness Class	Texture ¹ of the top 25 cm	Field Capacity Days				
		<126	126-150	151-175	176-225	>225
III	S ² LS SL SZL	2	2	2	3a	3b
	ZL MZCL MCL SCL	3a(2)	3a(2)	3a	3a	3b
	HZCL HCL	3b(3a)	3b(3a)	3b	3b	4
	SC ZC C	3b(3a)	3b(3a)	3b	4	4

In response to the statement that there is debate in Government to make all grade 3 land BMV, there is no stated intention to amend the BMV category, which currently covers an estimated 42% of agricultural land in England (TIN049).

In response to the point that the Applicant has failed to take into account the NPPF guidance, as recognised in Powering Up Britain, solar and farming can be complementary and meeting energy security and climate change goals are urgent and can be achieved together with maintaining food security. The NPPF was written to guide decision making on developments consented through the Town and Country Planning Act 1990 and consequently will have lesser weight than policy set out in NPSs. The draft NPPF would have less weight than the draft NPSs. It is the Applicants view that the Scheme accords with the relevant NPSs.

Additionally, footnote 58 of the NPPF relates to paragraph 175 which is a paragraph about plan making, not decision taking.

been a significant change to the climate recently and as such using data that is 34 years old will not give the same results as using current data. As grading of the land is related to the climate then Land Research Associates Ltd should carry out new tests based upon current data before deciding the land classification.

National planning policy guidance on development involving agricultural land is set out in National Planning Policy Framework (NPPF), which was revised on the 20th of July 2021. The NPPF aims to provide a simplified planning framework which sets out the Government's economic, environmental and social planning policies for England. The NPPF includes policy guidance on 'Conserving and Enhancing the Natural Environment' (Section 15). Paragraph 174 (a and b) (page 50) are of relevance to this assessment of agricultural land quality and soil and state that: 'Planning policies and decisions should contribute to and enhance the natural and local environment by: a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan); b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland. Paragraph 175 of the NPPF (2021) goes on to describe that: '175. Plan should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework. Footnote number 58 states that: 'Where significant development of agricultural land is demonstrated to be necessary, areas of poorer quality land should be preferred to those of a higher quality.' Land Research

Associates Ltd and Gate Burton Energy Park have failed to take into account this guidance in preparing and submitting this project proposal

Table A7 – Applicant Response to Response on the subject of Socio-economics and Land Use

WR	Summary	Applicant response
REP2-071	<p>Methodology – Study Area and Geographical Range Considered Within the Environmental Statement (ES), the Applicant has, through careful selection of the Study Area and ranges of impact, sought to create an impression of limited impacts of the scheme on the area:</p> <ul style="list-style-type: none"> <i>The Study Area used by the Applicant to reference baseline conditions has been chosen very widely, thereby avoiding having to highlight the specific socio-economic difficulties of Gainsborough, the nearest town to the Gate Burton Energy Park (GBEP)</i> <i>The same breadth of area has been used by the Applicant as reference area for considering employment and economic activity, which has an averaging effect on the assessment, and therefore also fails to highlight the specific socio-economic difficulties of Gainsborough.</i> <i>By contrast, the Applicant has chosen to deliberately narrow the reference area for considering other impacts to within 500m of the development, e.g. impact on Amenities and Residential Properties, despite the fact that scale of the GBEP would make it the dominant feature of the immediate area, being 3.5km across, vastly larger than any of the nearby villages.</i> <p>Deprivation: <i>To carry out a of socio-economic review of the area around the GBEP and not acknowledge or address the deprivation issues of the main population centre is either misleading, partial, or superficial, and should further serve to render the assessment inadequate.</i></p>	<p>It is not true that the study area has been selected to avoid highlighting the socio-economic difficulties of Gainsborough. The justification for the Study Area used in the assessment is explained within Table 12-1 of Chapter 12: Socio-economics and Land Use [APP-021/3.1] and in Chapter 14: Human Health [APP-023/3.1] where deprivation baseline analysis is reported.</p> <p>Deprivation</p> <p>The study area for human health, which considered deprivation, is based on the extent and characteristics of the Scheme and the communities/wards directly and indirectly affected by the Scheme as set out in Chapter 14: Human Health [APP-023/3.1]. Where other topics consider effects which are beyond this area, their reported findings are also considered in the assessment of Human Health effects.</p> <p>Employment</p> <p>Impacts on businesses are assessed under 'local amenities and land use' in Chapter 12: Socio-economics and Land Use [APP-021/3.1]. No adverse effects are expected upon businesses during construction or operation of the Scheme. Positive effects include the creation of employment through both the construction and operational phases.</p> <p>It is estimated that there are 1.5 existing FTE jobs in the DCO site related to agricultural activities that would be lost. Therefore, the 'existing employment' has been assessed as up to 2 jobs lost.</p> <p>It is estimated the Scheme will require an average 400 gross direct full-time employment (FTE) jobs on-site per day during the construction period. Although these jobs are temporary, they represent a positive economic effect for a substantial period.</p> <p>There will be up to 14 permanent FTE staff during the operational phase.</p>

- *The ES is misleading in its description of the region, in terms of economic activity, unemployment rates and education levels, concluding these are similar to those in the East Midlands and England. Considering the area with a greater level of resolution shows the significant scale of deprivation issues facing the community of Gainsborough.*

Employment:

The ES understates the likely impact of employment loss arising from the loss of agricultural land and lacks transparency in its assessment of any jobs lost, or the nature of any jobs created.

- *Limited interpretation of likely roles would suggest that any job creation locally will be in lower skilled, lower paid roles, and be unlikely to sustain livelihoods in the same way that jobs lost from agriculture.*
- *There is little or no community benefit through employment from the development, in an area that is in desperate need of jobs and prospects. The loss of farming livelihoods therefore can only be seen as an erosion of opportunity*

Land Use

The ES omits any consideration of efficiency of land use, nor does the ES consider the additional demands on agricultural land for planting trees, establishing peatlands and growing energy crops for biofuels, as identified by the UK Climate Change Committee in its 6th Carbon Budget. By omitting such important considerations, the sensitivity impacts of loss of land are understated.

- *In addition, the Applicant uses a large area (the whole of West Lindsey) in an attempt to minimise the apparent impact of the development, quoting 0.8% of West Lindsey agricultural land being impacted. When considering the southwest section of West Lindsey in which the concentrated effects of 4 large-scale ground*

An element of labour force will come from the local area with the remainder beyond. It is not possible to provide exact figures as much of this will depend upon skillset and availability. There is a desire to source local workers for as many roles as possible. Local workers will not require accommodation but will also retain more of the investment spend within the surrounding area.

The Applicant has developed an **Outline Skills, Supply Chain and Employment Plan [APP-228/7.7]** which is secured by Requirement 18 of the draft DCO and aims to identify and maximise opportunities for local communities.

Land Use

In terms of the Scheme having a negative cumulative impact on BMV with other Schemes an assessment of the maximum impact that all existing and proposed solar schemes (both Town and Country Planning and Development Consent Order) in Lincolnshire may have on best and most versatile agricultural land has been undertaken. This assessment is presented in a Technical Note submitted at Deadline 2 [8.11]. This Technical Note demonstrates that even if all solar schemes considered were consented and constructed, they would still occupy just over 1% of the BMV land in Lincolnshire. Given that no DCO projects except Little Crow are yet consented in Lincolnshire and the majority are in the early stages of development, in reality far fewer projects than assessed in the Technical Note may be developed. As Schemes develop they tend to reduce in size and particularly reduce areas of BMV land in line with policy, so this figure is also likely to be less than predicted for each scheme that is constructed. The Scheme boundaries in places also include grid connection corridors where agricultural uses will continue. There is also the potential for agricultural use to continue on each site alongside solar development. Therefore, even the figure of just over 1% is likely to be a significant overestimate.

On Local Plans, these documents are not written to guide decision-making on NSIPs consented through the Planning Act 2008 and typically Local Plans do not identify areas for major infrastructure projects. However, policies in the Local Plan have been considered in the site selection and design of the Scheme. Compliance of the Scheme with policies in the Local Plans is assessed in detail in the Planning, Design and Access Statement [REP2-004 & 006/2.2] and associated appendices.

mounted solar schemes are proposed, this figure rises to 20% of farmland.

Local Plans

A significant amount of work has been carried out in the region to develop plans for the future of the region. This work has been extremely conscious of climate change and actions to decarbonise the economy, however neither makes any proposals for the development of large-scale ground mounted solar as a contribution to the development of the region.

- The industrialisation of an area of Lincolnshire through extensive deployment of large-scale ground mounted solar would serve to undermine the Agrifood ambitions of the Lincolnshire Industrial Strategy as well as the appeal for visitors and the ambition to improve areas of deprivation through the stimulation of the Visitor Economy.*
- The Central Lincolnshire Plan sets out objectives for Land Use (protecting the resources of the county) as well as for Climate Change and Energy. Where solar does feature, it is primarily in relation to retrofit to buildings or incorporation into building design.*
- The CLP sets out policies for Renewable Energy as well as the protection of landscapes. The criteria to be met for a renewable scheme to be acceptable are clear, including considerations of scale, impacts on landscape character, visual amenity amongst other issues. What is also clear is that meeting these criteria would be impossible for a scheme at the scale of GBEP.*

Table A8 – Applicant Response to Response on the subject of Human Health and Wellbeing

WR	Summary	Applicant response
REP2-075	<p>Human Health and wellbeing <i>Health and wellbeing has been described more in terms of construction and decommissioning, with very little substance as to the sixty-year gap, that being the operators cycle where potentially the biggest impact will be to the health and wellbeing of the people that live and work in Gainsborough and its surroundings. The definition of health and wellbeing is important to understand within the context of this written representation.</i></p> <p>Legislation and Policy: <i>Much of the guidance is around urban development and not much is in place to guide the issues faced in rural development around health and wellbeing. The Development Consent order (DCO) refers to WHIASU (Welsh Health Impact Assessment Support Unit). Their Quality Assurance Framework document outlines the importance of understanding clearly that the DCO should outline a clear understanding around physical and mental (holistic), and includes the social(wider) determinants of health. It includes a reference to identifying the people and vulnerable groups. We feel this DCO document lacks substantial clarity around this.</i></p> <p>Deprivation <i>This DCO document fails to recognise Gainsborough town as the four LSOAs (Local Authorities and Lower Super Output Areas) within West Lindsey District which is in the top 10% most deprived LSOAs in England. Gate Burton Energy</i></p>	<p>Human Health and wellbeing Chapter 14: Human Health [APP-023/3.1] considers the impact on human health and wellbeing during the construction and operational period, resulting from air quality, transport and access, socio-economics and noise and vibration. These chapters have found no adverse significant residual effects related to human health and wellbeing (including cumulatively).</p> <p>Legislation and Policy The assessment of potential effects on Health and Wellbeing as presented in ES Chapter 14: Human Health and Wellbeing [APP-023/3.1] was undertaken based on guidance on assessment methodology set out within DMRB Document LA112 – Population and Human Health. This sets out requirements for assessing and reporting the environmental effects on health and wellbeing determinants from construction, operation and maintenance of highways projects. It provided a methodological framework for the assessment of human health effects in respect of other linear infrastructure projects in the absence of more specific guidance for energy infrastructure projects. As the DMRB Document LA112 guidance did not provide a methodology for assessing the significance of outcomes or effects, the potential health effects during construction and operation were identified in the ES using the criteria provided in Table 14-1 of ES Chapter 14: Human Health and Wellbeing [APP-023/3.1] to determine positive, negative and neutral outcomes. More information on the methodology for the assessment of health and wellbeing effects is provided within section 14.6 of ES Chapter 14: Human Health and Wellbeing [APP-023/3.1]. Notwithstanding that there was an absence of methodology to determine the significance of effects in respect of health and wellbeing, the assessment of impacts presented in the ES is considered by the Applicant to be robust and appropriate on this basis.</p> <p>The study area for human health, which considered deprivation, is based on the extent and characteristics of the Scheme and the communities/wards directly and indirectly affected by the Scheme as set out in Chapter 14: Human Health [APP-023/3.1]. Where other topics consider effects which are beyond this area, their reported findings are also considered in the assessment of Human Health effects regardless of whether they are within the wards identified..</p>

Park borders on this town and is inextricably linked to it, and therefore this document is failing in its duty to understand how the scheme will directly impact on human health and wellbeing as part of its surroundings. This has the potential to widen health inequalities. This was highlighted in the Director of Public Health report 2022 as an urban industrial centre with high levels of economic inactivity and low social mobility. Two papers written for the energy sector state that these solar energy farms are more likely to be passed in areas of deprivation and where communities of lower social capital exist.

Qualitative data

The only qualitative data provided was outdated ONS (Office of National Statistics) data from 2011. We argue that the only way to obtain this data is through a widened qualitative feedback survey following a well-informed process. This would highlight whether or not there are issues around the impact of health and wellbeing on how this scheme makes us feel emotionally, physically and mentally. Much of this is subjective and needs exploring.

Physical, mental and social

Rural communities on the whole tend to be healthier than urban. However, rural areas tend to have much older people with a higher life expectancy. There is natural outward migration of younger people from rural communities, and with schemes like this making it less attractive for young people live and settle in, because of field industrialisation, areas could be left with older people with no workforce attraction to prop up health and social care within these communities. This would compromise the vulnerable and has the effect of increasing loneliness and isolation. There is a failure in this document to use well established

An assessment of health impacts has been prepared in accordance with the legislation and guidance set out in **Chapter 14: Human Health [APP-023/3.1]**. This includes the HUDU criteria which identifies the likelihood of neutral, positive or negative health effects drawing on the findings from other relevant chapters. The chapter concludes no significant effects.

The data informing the assessment was based on the most up-to-date data available for the indicators considered. Census 2011 data was used only in the absence of recent data and as exceptions. The consultation process undertaken during the preparation of the Environmental Statement provided opportunity for comment on the data used and approach.

Mental Health

Chapter 14: Human Health [APP-023/3.1] paragraph 14.8.1 outlines that the Scheme has the potential to affect Human Health and Wellbeing (either positively or negatively), during construction, operation, decommissioning, in the following ways:

- Access to Healthcare Services and Other Social Infrastructure;
- Air Quality, Noise and Neighbourhood Amenity;
- Accessibility and Active Travel;
- Access to Work and Training; and
- Social Cohesion and Lifetime Neighbourhoods.

As stated in paragraph 14.9.1 *“Embedded mitigation measures are incorporated and secured into the Scheme as set out in the respective ES chapters to reduce other construction, operational and decommissioning effects (such as noise and vibration, air quality, transport and access and socio-economics and land use) which in turn will mitigate the effects on the local community and existing facilities from a Human Health and Wellbeing perspective.”* This includes in respect of potential impacts on mental health.

In terms of disruption during the construction and operational phase and in recognition of the potential for impacts on mental health that could arise from activities on-site and surroundings, there are measures set out in the **Framework CEMP [APP-224/7.3]**, **Framework OEMP [APP-225/7.4]** and **Framework DEMP [APP-226/7.5]** (and subsequent versions) to reduce or avoid impacts during the construction and operational phase, respectively.

Quality and Outcomes Framework (QOF) data to understand health in this area. For example, there is a higher modelled prevalence of respiratory disease in Gainsborough, in an area that has poor air quality as compared to the rest of Lincolnshire. In many of the other disease profiles (e.g., stroke, coronary heart disease and cancer), these are higher than the National and Lincolnshire prevalence. The higher the deprivation, the greater the multimorbidity. Mental health and the environment are linked in health outcomes and wellbeing. Many people gain benefit for their mental health by living in the countryside. Depression in our communities is increasing and 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.

Rural vs Urban

There is a real concern, that as cities and towns heat up with climate change “heat islands”, that the rural environment should be preserved to provide areas for the people from urban areas to come out into rural areas to cool down. By developing forests and woodlands, this would enable rural shade, carbon sinks as well as providing nature-based therapy. People in urban areas seek out the natural environment to connect with nature as a means to helping them cope with life.

Noise and light pollution

Rural communities on the whole have little exposure to traffic noise. In rural communities, there is very little light pollution. This scheme has the potential to increase noise generated from transformers, inverters and battery cooling fans. Perimeter fence lights have the potential to increase light pollution. This is an issue to those residents who border the scheme. Both noise and

An assessment of health impacts has been prepared in accordance with the legislation and guidance set out in **Chapter 14: Human Health [APP-023/3.1]**. This includes the HUDU criteria which identifies the likelihood of neutral, positive or negative health effects drawing on the findings from other relevant chapters. The chapter concludes no significant effects.

Noise Pollution

The Applicant can confirm that embedded mitigation has been included within the Scheme to ensure the effective management and control of noise within the context of sustainable development. In terms of the construction works, temporary construction compounds have been located so they are not in close proximity to sensitive receptors. A **Framework CEMP** has been submitted as part of the DCO Application, with an updated version submitted at D2.

In terms of the operational phase, the distance between noise sources and receptors has been maximized as far as reasonably practicable. Measures to minimise potential adverse effects associated with the operational phase are outlined in the **Framework OEMP [REP-028/7.4]**.

Light Pollution

Any lighting during construction and decommissioning will be directional and task-specific to avoid light spill. These measures are included within the **Framework CEMP [APP-224/7.1]** and **Framework DEMP [APP-226/7.5]**.

In terms of the operational phase, no part of the Scheme will be continuously lit. Manually operated, and motion-detection lighting will be utilised for operational and security purposes around electrical infrastructure such as inverters, transformers and switchgear across the solar PV array areas, and within the compounds and substations. Lighting will be directed downward and away from boundaries. No visible lighting will be utilised at the site perimeter fence, aside from the site entrance points. These measures are formalised in the **Framework OEMP [APP-225/7.4]**.

*light pollution could potentiate sleep deprivation,
worsening mental health, and eventually poor
physical health*

Table A9 – Applicant Response to Response on the subject of Wildlife and Habitat

REP2-082	<p>Impact on wildlife by large scale solar developments</p> <ul style="list-style-type: none">• <i>There is little evidence in support of ecological improvements made by large scale solar developments on temperate agricultural land.</i>• <i>Developments of this scale tend mainly to be situated in countries such as India, China, Egypt and Australia. With much higher solar gains and greater land mass than the UK, often in barren or semi desert landscapes, away from habitation. This land usually has little value or specific alternative purpose.</i>• <i>Ecological impact on these far-flung landscapes would have little in common with the effects of giant solar developments on the UK's important and fertile land. UK farmland is under constant competition for projects that cannot be realised elsewhere. Land must be given over to other such developments. Solar does not require to be land mounted and is commonly a rooftop installation giving the roof an important secondary function.</i>• <i>With 4 giant solar developments proposed in this area of Lincolnshire. Wildlife will inevitably suffer. The considerable construction period of these massive solar developments with the impact spanning many years, would be an intolerable disturbance to wildlife. With thousands of transient workers and the transportation of millions of solar panels etc. Heavy machinery operating 12 hrs a day, all year round, would decimate fragile breeding habitats and destroy soil balance and structure. Removing hedgerows would be catastrophic and should not even be considered. Habitat and ecosystems cannot be created overnight with token planting schemes.</i>• <i>Security fencing is now an insurance necessity on solar sites. The standard deer fencing as shown in the plans would not now be permitted.</i>	<p>Ecological Improvements and Biodiversity Net Gain</p> <p>The Scheme will provide a substantial net gain in biodiversity units, as well as significant individual ecological beneficial effects. There are no significant adverse effects for the Scheme on ecological receptors and overall the Scheme is considered to benefit biodiversity, by produced a range of biodiverse habitats, including grasslands, scrub and hedgerows which increase wildlife and promote greater ecological connectivity across the landscape, connecting existing fragmented habitats, such as woodlands. . The Scheme has been carefully designed to minimise the impacts on existing biodiversity, including avoiding the need for any Protected Species licences; a situation which is unusual for large infrastructure schemes..</p> <p>Use of the Land and Rooftop Solar</p> <p>See response in the Applicant Responses to Relevant Representations in Section 2.4 [REP-032] which explains that a combination of rooftop and large-scale solar projects are required to meet the National Grid's projections of required solar capacity.</p> <p>Agricultural Land</p> <p>It is agreed that some agricultural land will be taken out of arable production temporarily for 60 years. Land affected permanently by the development (such as construction of the substation) will be limited to small areas. Impacts to BMV have been avoided by siting permanent infrastructure outside of areas of good quality agricultural land. Chapter 12: Socio-economics and Land Use [APP-021/3.1] includes a breakdown of permanent and temporary losses for the different types of land use within the proposed development (including the Grid Connection Corridor), broken down by ALC area (ha) and percentage.</p> <p>A large proportion of the land is farmed for crops used for industrial processes, alcohol production, bioethanol, fish pellets, fish food and biofuel and is not actually producing food for human consumption.</p>
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- *The many miles of steel fencing required would exclude important mammal species from thousands of acres of their habitat, channelling deer, hare and rabbits to existing and newly planted hedgerows, which would be destroyed or seriously damaged in a very short period of time. Biodiversity net gain targets would disturbingly never be achieved.*
- *Mitigation measures fall woefully short, expecting farmland birds to move to isolated fields, when they have been maintaining healthy strongholds selecting their natural breeding sites from choice*
- *Glint and Glare from these vast solar schemes are a concern for its effect on birds as well as humans. Panel collisions have regularly been reported. With vast swathes of important open countryside lost to these installations, this would inevitably lead to the decline of our protected raptor species.*
- *Loss of vital insect numbers due to panel attraction, is also a documented concern. With literally a sea of solar panels in one area. The attraction to this false water could be of huge ecological consequence.*
- *Artificial microclimate formations around the arrays and in the locality alter ambient temperatures by several degrees, combined with constant shading of much of the soil below is worthy of consideration especially on long term soil health and invertebrate habitat.*

Cumulative effects

- *There is no evidence of wildlife benefit from large ground mounted solar schemes in the UK, as there are none of this scale.*
- *On a human note, many people get much pleasure from their immediate surroundings and the wildlife it contains. Indeed, many live in the countryside for this reason alone. To lose this on such an immense scale could be catastrophic not just for the spirit of the communities involved but for residents continued mental wellbeing and good health.*

Impact on wildlife

Chapter 8: Ecology and Nature Conservation [APP-017/3.1], and **Appendices 8-C to 8-L [APP-127 to 136/3.3]** provide details of the extensive biodiversity surveys undertaken, following best practice guidance, to establish the presence of habitats and species. The results of these surveys have then been used to inform the Scheme design, which has carefully sought to avoid and minimise adverse impacts to habitats and species during all phases of the Scheme. These embedded measures within the Scheme design are set out in section 8.9 of **Chapter 8: Ecology and Nature Conservation [APP-017/3.1]** and detailed for each habitat and species in Table 8-10.

The **Framework CEMP [APP-224/7.3]**, **Framework OEMP [APP-225/7.4]**, and **Framework DEMP [APP-226/7.5]**, secure the mitigation measures required throughout the lifetime (construction, operation and decommissioning) of the Scheme, including mitigation for ecology and biodiversity. For example, the Framework CEMP sets out the retention and protection of existing habitats, e.g., woodlands, hedgerows and other semi-natural habitats, which will ensure that wildlife will not be displaced. The Framework CEMP also includes provisions for habitat re-instatement following construction and measures to minimise hedgerow loss.

The **Outline Landscape and Ecology Management Plan (OLEMP) [APP-231/7.10]** outlines the landscape and ecology impact avoidance measures that would be implemented prior to, and during, construction of the Scheme, as well as the habitat restoration, enhancement, management and monitoring measures to be implemented once the Scheme is operational. Considerable enhancement measures are proposed as part of the OLEMP, with net gain proposed for the Solar and Energy Storage Park, when compared to baseline conditions, resulting in positive effects for ecology during the lifetime of the Scheme. Large areas of the Solar and Energy Storage Park have been excluded from development specifically for planting and wildlife linkages. There will be no loss of established wildlife corridors, nor fragmentation of habitats, as existing corridors, e.g., hedgerows, field margins, etc., will be retained and in many instances enhanced. Security fencing has been designed to continue to allow movement of deer across these existing corridors.

Security Fencing

- *I can see much harm coming from this unparalleled amount of industrial development, and the associated loss of our natural and semi-natural landscape.*
- *The impact of this scheme on the natural world has not been addressed thoroughly by the Developer. We must not sugarcoat the reality that each scheme is an industrial project on a scale that dwarfs every other type of past development. Token planting and the mere hope of mitigation success is too much of a gamble to take, with no evidence backing the effects of land use change of this magnitude.*
- *The issues highlighted in this report and a worst-case scenario of 10,000 acres of development in one area, would mean a compound level of disturbance and impact, with an outcome that no one can be sure of.*

The **Outline Landscape and Ecology Management Plan (OLEMP) [APP-231/7.10]** outlines the landscape and ecology impact avoidance measures that would be implemented prior to, and during, construction of the Scheme, as well as the habitat restoration, enhancement, management and monitoring measures to be implemented once the Scheme is operational. There will be no loss of established wildlife corridors, nor fragmentation of habitats, as existing corridors used by wildlife, e.g., hedgerows, field margins, etc., will be retained and in many instances enhanced, through additional planting and strengthening of hedgerows, areas of scrub and broad grass margins. The management of these habitats will also seek to maximise their biodiversity value. This will increase the connectivity between habitats areas for wildlife and create broader and more resilient linkages across the landscape.

As stated within **Chapter 8: Ecology and Nature Conservation [APP-017/3.1]** the fence will be a 'deer fence', up to 3m in height and will include gaps in the base to allow mammals, including small deer, badger, brown hare and hedgehog, to continue to move across the Scheme. As such, there will be no reduced ability for mammal species to continue to move around the landscape, nor risk of becoming 'trapped' within fenced areas. Existing areas of woodland and many of the hedgerows will sit outside of the security fencing, ensuring that larger mammals such as deer, can continue to move across the landscape.

Monitoring of operational solar farms has demonstrated that with appropriate creation and management of diverse grasslands within PV arrays, significant populations of terrestrial invertebrates can occur.

Glint and Glare

Chapter 8: Ecology and Nature Conservation of the Environmental Statement [APP-017/3.1] identifies bird species recorded as part of the detailed baseline surveys (Table 8-8), with an assessment of potential impacts undertaken in section 8.10. Where required, the Scheme has delivered appropriate mitigation (Table 8-10). The assessment concludes there will be no significant residual effects on birds. There is no evidence that current PV panel technology results in glint and glare effects that could kill birds or prevent birds of prey from hunting. In fact, there is a growing wealth of evidence that solar farms benefit both breeding and non-breeding birds, by providing improved foraging and nesting opportunities, with appropriate establishment of grasslands, undeveloped margins and thick, dense hedgerows.

Invertebrates

A detailed assessment of the potential impacts of the Scheme on biodiversity are set out in section 8.10 of **Chapter 8: Ecology and Nature Conservation [APP-017/3.1]**. This assessment concludes that with appropriate mitigation there will be no significant adverse effects on biodiversity. With the enhancement measures included within section 8.11 of **Chapter 8: Ecology and Nature Conservation [APP-017/3.1]** the Scheme will generate beneficial effects for broad-leaved (ancient) woodland, hedgerows, terrestrial invertebrates, reptiles and amphibians, breeding and non-breeding birds, bats, Badger and other mammals, such as Brown Hare and Hedgehog).

Cumulative effects

The **Cumulative Effects and Interactions chapter [APP-025/3.1]** assesses the potential for effect interactions and cumulative effects caused by reasonably foreseeable plans and projects (including the Tillbridge, West Burton and Cottam projects) with the Scheme. This concluded no significant cumulative effects on ecology and biodiversity based on the assumption that sufficient mitigation will be provided for the Scheme and Cottam and West Burton projects. In addition, the Applicant has worked with Cottam Solar Project and West Burton Solar Project to reduce overall environmental effects. The Report on the Interrelationships with other NSIPs submitted at Deadline 1 [8.2] confirms that the conclusions of the Gate Burton ES ecology chapter remain correct when the final ESs have been reviewed for the Cottam and West Burton projects and after reviewing the PEIR for Tillbridge.

Table A10 – Applicant Response to Response on the subject of Environmental Statement Volume 3 Appendix 15D: Glint and Glare Assessment

WR	Summary	Applicant response	Sign-off

<p>REP2-076</p> <ul style="list-style-type: none">• <i>The Applicant is required to demonstrate that the impact of glint and glare is minimal.</i>• <i>The Applicant has chosen to disregard any significant glint and glare created by the metal structures associated with the solar farm</i>• <i>The US Federal Aviation Authority (FAA) assessment methodology selected by the Applicant has been misapplied. This results in an underestimation of the actual impact of glint and glare.</i>• <i>In particular, the Applicant has clearly not understood the two assessment criteria in the FAA methodology. The Applicant has used short term exposure (up to 1 minute) criteria, deemed acceptable for pilots, to receptors who will view for a longer period.</i>• <i>The Applicant has not taken account of actual observer heights, such as the upstairs window of a residence, so underestimating the impact of glint and glare.</i>• <i>The Applicant has not taken account of the cumulative effect of glint and glare, in accordance with Advice Notice Seventeen.</i>• <i>The Applicant has not taken account of any viewers outside 1km from the development.</i>• <i>The Applicant has not taken account of receptors with common eyesight conditions.</i>• <i>The Applicant has used Google Earth to conduct a desktop assessment of screening. This does not provide a valid assessment of the actual screening available, as rural views on Google Earth are frequently out of date, and certainly will not take account of seasonal variations in vegetation</i>• <i>The Applicant takes no account of the impact on livestock and equestrian activities, which are a feature of this area</i>• <i>Recommendations are made on how to correct this narrow and deficient assessment</i>	<p>Metal Structures</p> <p>The metal structures will not have significant glint and glare issues in comparison to the solar panels themselves. When assessing the Glint and Glare impacts, a solar panel area is created within the model which assumes all the field to be solar panels. This does not consider any gaps between panel rows, access tracks or other areas vacant of panels, therefore giving a worst case scenario and assuming there are far more solar panels present than there will be in reality.</p> <p>Methodology</p> <p>Residential, pilot and ATC assessing methodology is different. The assessment of pilots and ATC staff contains the potential safety risk associated with glint and glare impacts due to the nature of the aviation industry, whereas for residential receptors there is not such a safety risk.</p> <p>When assessing residential receptors, the impacts are based on the yellow glare produced, as this is the glare that causes negative impacts. When there is no risk to safety, green glare is an insignificant impact as this glare is no different/less intense than everyday glare that occurs (windows, water, white roofs etc). The magnitude criteria for impacts on residential receptors is outlined by 7000acres in section 2.5, of which is agreed to be the correct method of identifying the magnitude of impact.</p> <p>When road receptors are assessed, all possible road users are considered within the assessment (Equestrians, pedestrians, farm vehicles, HGVs, cyclists etc). Road receptors and rail receptors are assessed against a similar magnitude methodology to those that pilots are due to the potential safety implications of glint and glare impacts. If there is "Green Glare" then impacts are considered Low and acceptable, but if there is "Yellow Glare" then impacts are considered High and require mitigation. Again, this is a methodology that has been applied across a large number of solar developments that have gained consent across the UK and Ireland and has stood the test of peer review from other Glint and Glare professionals.</p> <p>The Glint and Glare assessment is considered to be worst case as the model has used the following assumptions (as taken from paragraph 4.37 in the Glint and Glare Assessment):</p> <p><i>"The model does not rigorously represent the detailed geometry of a system; detailed features such as gaps between modules, variable height of the PV array, and support structures may impact actual glare results;</i></p>
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The model assumes that all components in a field have the same reflectivity of the PV array, as such they have been assessed as part of the model to represent a worst-case scenario. Should the actual footprint decrease of said components, then any additional arrays within that area will not have a material impact on this assessment.

Due to variations in atmospheric composition, temperature, pressure and conditions, observed values may vary slightly from calculated positions;

The model does not account for the effects of diffraction; however, buffers are applied as a factor of safety; and

The model assumes clear skies at all times and does not account for meteorological effects such as cloud cover, fog, or any other weather event which may screen the sun.”

Observer Heights

The observation heights for each receptor have been put into the model to generate a baseline glint and glare impact from which we can perform the visibility assessment from. In reality, changing the observation height will not change the absolute glint and glare impact value. 2m for residential receptors represent ground-floor windows, 1.5m for road receptors represents the typical eye level of a motor driver and 2.75m for rail represents the typical rail driver.

Within the visibility assessment, all windows and floors of a residential property are considered to determine if views will be present from that receptor to the areas of the site that have potential to cause glint and glare impacts. The Google Earth street-view image is taken at 2.5m, which according to the Manual for Streets (MfS), is a more than sufficient height to take into account the road users (2m is seen as the max height of a HGV driver within MfS).

All mitigation proposed takes into account the entirety of the receptor; all windows on the house, eye view of 2.5m from the road and the eye level of a train driver.

Viewers outside 1km

The 1km study area is an industry standard that is used by various Glint and Glare professionals for assessing ground-based Glint and Glare impacts across the UK and Ireland. Furthermore, the 1km study area used for Gate Burton gave an excellent variety of receptors (Residential, Road and Rail) within the vicinity (also used for Cottam, West

Burton and Longfield NSIPs – to name a few). Moreover, it was concluded that there were no significant effects within the 1km study area. Finally, just because solar panels can be seen does not mean there will be Glint and Glare impacts, this is a common misconception as it is entirely based on the angle a receptor is in relation to the panels producing the Glint and Glare.

Desktop Study

Having checked the image date on google Earth whilst performing the Visibility Assessment, it was found that the images were taken in November 2021. Furthermore, a site visit was conducted in November 2022 to ensure that the images represented the current scenario. Therefore, potential seasonal variance has been taken into account through this, although this is not typically required for glint and glare as impacts only occur between the end of March and October (as shown on the glare results submitted alongside the glint and glare report).

Vegetation is a recognised mitigation option to help screen impacts of glint and glare, having been suggested and accepted by councils across the UK and Ireland on varying sizes of solar developments.

Equestrian activities

Equestrian users are considered alongside the road receptors. There is only one bridleway within 1km of Gate Burton and this is located along the track to the south of road Receptor 87. The impacts from Road Receptor 87 are assessed as negligible.

Cumulative effects

The Applicant has had regard to developments in the surrounding area in its cumulative assessment, which has been undertaken in each of the technical chapters of the ES and summarised in **Chapter 16: Cumulative Effects and Interactions of the ES [APP-025/3.1]**. Measures being taken to reduce the cumulative impact of multiple solar projects in the local area include a commitment to a shared Grid Connection Corridor as outlined in **Chapter 3: Alternatives and Design Evolution [APP-012/3.1]**. Other commitments are outlined in **Chapter 16: Cumulative Effects and Interactions [APP-025/3.1]**. A document reporting particularly on the interrelationships between the four NSIP solar projects in the area was submitted at Deadline 1 [8.2].

The Glint and Glare cumulative assessment reported in Chapter 15 of the ES **[APP-024]** concludes that cumulative effects would not arise for glint and glare.

Table A11 – Applicant Response to Response on the subject of Land Productivity

WR	Summary	Applicant response
REP2-074	<p><i>Within Chapter 12: Socioeconomics and Land Use [EN010131- APP-3.1] there is no mention of the existing crop production that will be lost if the acreage is covered in solar panels. There is also no mention of the associated businesses that will be impacted by this loss of crop production. The developer Gate Burton Energy Park should provide an assessment of this topic with quantifiable data covering:</i></p> <p><i>a) What crops have been produced in the past?</i></p> <p><i>b) What quantity and grade of crops have been produced?</i></p> <p><i>c) What percentage of UK production is this?</i></p> <p><i>d) Where else are these crops produced that can replace the lost production?</i></p> <p><i>Recognising land use pressure as a cross-cutting national challenge, the Geospatial Commission initiated the National Land Data Programme (NLDP) which has explored key land use challenges and demonstrated where innovative data analysis and evidence can support better land use decisions.</i></p> <p><i>The impacts of land use changes at a systems level are not always well understood. For example, if we convert agricultural land to use for energy production we would need to consider whether this</i></p>	<p>Crops Rotation</p> <p>Across the Solar Energy and Storage Park the cropping is a rotation of mainly winter wheat, winter barley and a break crop. All of the land is farmed by larger enterprises with other land outside the Order Limits, and they operate rotations across the wider farm areas. 67 ha within the site is in a long-term energy crop (miscanthus, harvested as bio-fuel).</p> <p>The cropping in 2023 across the Solar Energy and Storage Park is:</p> <ul style="list-style-type: none"> • winter wheat, grown for a mixture of animal feed, bio-ethanol and milling; • winter barley grown for animal feed; • winter oilseed rape grown as biofuel; • winter beans grown for animal feed as a protein; • miscanthus harvested as a bio-fuel; • maize grown as animal feed or bio-fuel • agri-environmental land cover. <p>In other years the cropping rotation can include spring sown crops (wheat, barley, beans), oats and maize.</p> <p>Quality and grade of crops</p> <p>The majority of the site is subgrade 3b "moderate" quality land. Within the Solar and Energy and Storage Park a total of 80.4 ha is subgrade 3a, which is Best and Most Versatile (BMV). This amounts to 12% of the site. The majority of the Solar and Energy Storage Park is subgrade 3b "moderate" quality land.</p>

would necessitate increased food imports to meet our supply needs and therefore if it would relocate rather than resolve negative environmental impacts

Current yields of crops across the holding vary, reflecting variability in the land, rates of fertilisation and different farming practices. Across most of the Solar Energy and Storage Park the yields of wheat are normally in the 7 - 10t/ha range. Some of the land achieves higher yields than this.

Percentage of UK production

It is agreed that some agricultural land will be taken out of arable production temporarily for 60 years. Land affected permanently by the development (such as construction of the substation) will be limited to small areas. Impacts to BMV have been minimised where possible by siting permanent infrastructure outside of areas of good quality agricultural land. **Chapter 12: Socio-economics and Land Use [APP-021/3.1]** includes a breakdown of permanent and temporary losses for the different types of land use within the proposed development (including the Grid Connection Corridor), broken down by ALC area (ha) and percentage.

A large proportion of the land is farmed for crops used for industrial processes, alcohol production, bioethanol, fish pellets, fish food and biofuel and is not actually producing food for human consumption.

The site itself represents approximately 0.1% of all the farmland in Lincolnshire but is capable of powering approximately 155,000 homes which is around one half of all the homes in Lincolnshire¹.

There is no research to quantify the difference in production between BMV and non-BMV land. If for the sake of assessment, the crop assessed is winter wheat as that is the highest yielding cereal, and the difference was taken as the difference between a high and average performance in the John Nix Pocketbook for Farm Management (2023 edition) at 1.4 tonnes per hectare, the effect of the full 80.4ha of BMV within the Solar and Energy Park would be 112 tonnes ($80.4 \times 1.4 = 112.5t$).

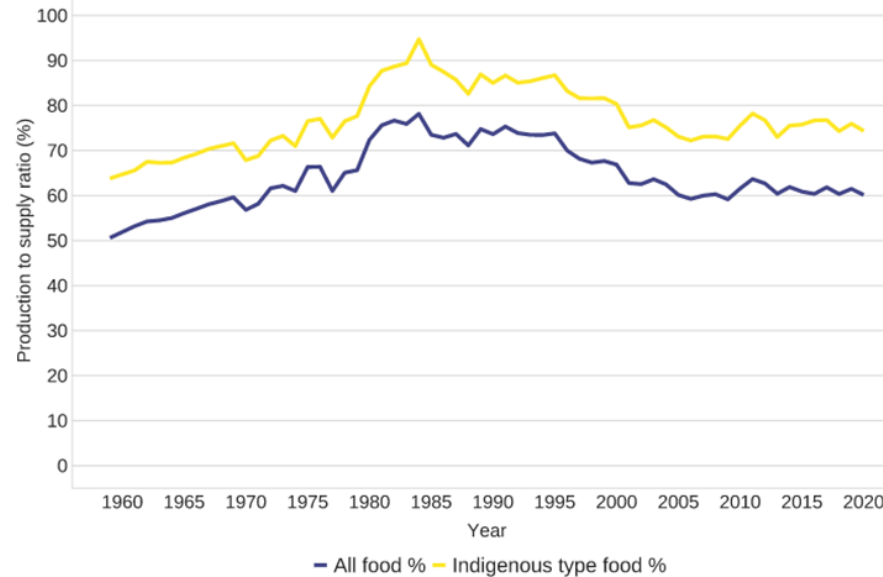
In 2022 the UK cereal production increased by 8.5% over the previous year to just over 24 million tonnes, of which wheat accounted for 15.5 m tonnes, and barley for 7.4 m tonnes.

The effect of not using BMV within the site is negligible in terms of UK production. Even if all the 634 ha of agricultural land (which includes hedges and margins and so is an over-estimate of production areas) within the Solar and Energy Storage Park, including areas not proposed for panels, was assessed then production of wheat would be of the order of 5,500 tonnes ($553 \text{ ha} \times 8.6t/ha$, $80 \text{ ha} \times 10t/ha$). This is 0.023% of UK cereal production in 2022.

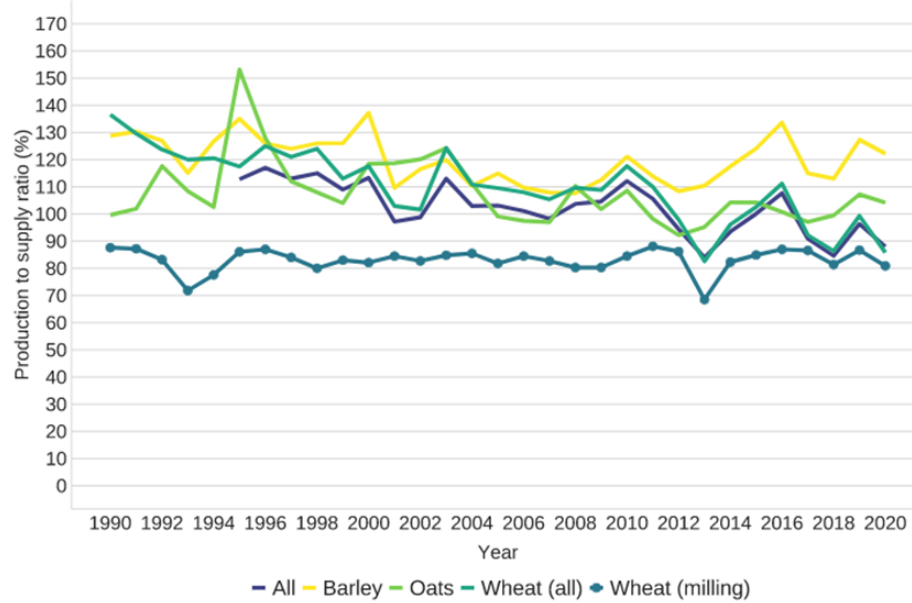
¹ ONS (2011) Census 2011: Households (Tenure)

Consequent Need to Import

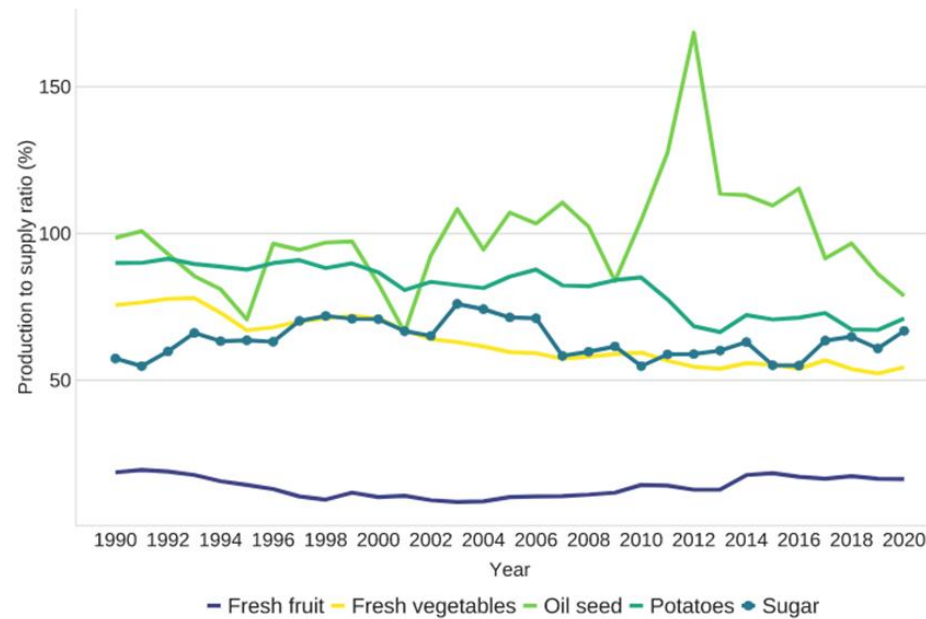
The Government's position is that **"the UK has a large and highly resilient food supply chain. Our high degree of food security is built upon supply from diverse sources: strong domestic production as well as imports through stable trade routes"** (Defra Press Release 6 December 2022). The Government Food Strategy (2022) sets out objectives to "broadly maintain the current level of food we produce domestically". Overall, the UK produces about 60% by value of the food we eat, but that rises to about 74% of the food we can grow or rear in the UK, as shown below (graph taken from the UK Food Security Report 2021).



The position in terms of domestic grain production is strong. Only in terms of milling wheat are we producing less than we consume, but we export cereals and import cereals of a different grade, due to climatic variations.



In respect of other crops, the position is as follows.



The reasons for the graph are many and varied. The UK remains largely self-sufficient in terms of cereals, meat, eggs, milk and many of the fruits and vegetables suited to our climate.

Given that the UK is at or over self-sufficiency in most grains there would not be a need to import or find other land to replace the production.

Table A12 – Applicant Response to Battery Energy Storage System Safety Concerns

WR	Summary	Applicant response
REP2-074	<ul style="list-style-type: none"> • <i>There have been over 30 recorded serious thermal runaways in Battery Energy Storage Systems (BESS) worldwide. In 2020 a 20 MWh BESS in Liverpool took over 11 hours to contain and resulted in an explosion and release of toxic gasses.</i> • <i>The Applicant has failed to take account of the large volume of water required to contain a BESS thermal runaway. The on-site storage identified by the Applicant is insufficient. Additionally, the Applicant’s Appendix 9-C: Outline Drainage Strategy appears to take no account of retaining the large volume and highly contaminated water post a thermal runaway incident</i> • <i>The Applicant does not explain how the evidence of emissions from a 100 kWh battery (Tesla car sized battery) can be applied to the Gate Burton BESS.</i> • <i>The Applicant has failed to follow the module spacing guidance of 6m between modules, shown in the National Fire Chiefs Council guidance but has chosen to apply only 3m</i> • <i>The Applicant’s Unplanned Atmospheric Emissions from the Battery Energy Storage Systems document refers mainly to a BESS fire and not the more hazardous thermal runaway.</i> • <i>As the Applicant has chosen to apply a Rochdale Envelope to this project, the document should use worst-case assumptions in their modelling</i> • <i>Six recommendations have been made on how the safety of the Application should be improved:</i> <ul style="list-style-type: none"> • <i>The Applicant applies evidence from BESS thermal runaways to identify the large volume of cooling water required. The infrastructure, both storage and external</i> 	<p>Thermal Runaways</p> <p>The Applicant has brought in Dr Paul Christensen from Newcastle University to advise on the latest worldwide safety protocols associated with Lithium-Ion technology, along with the Lincolnshire Fire and Rescue Service to advise on design and a safety management plan and to provide the emergency services with relevant information if requested. This will be refreshed prior to construction to ensure the highest safety standards are incorporated in the design and ensure minimal impact on the environment. The Applicant has had a virtual meeting with Lincolnshire’s Fire and Rescue team and this engagement will continue throughout the development, construction and operation of the Scheme.</p> <p>The detailed design phase of individual BESS sites will consider the lifecycle of the battery system from installation to decommissioning. At the detailed design stage, risk assessment tools will be utilised together with detailed consequence modelling to provide a comprehensive site operations and emergency response safety audit.</p> <p>The battery system mitigation measures adopted in a final Battery Fire Safety Management Plan, will reflect the latest BESS safety codes and standards applicable at that stage. Mitigation measures will be discussed and coordinated with LFRS.</p> <p>A Failure Modes and Effects Analysis (FMEA) of the BESS (BS EN IEC 60812) will be conducted to lay the foundation for predictive maintenance requirements and compliment the fault indicator capabilities of the BMS data analytics system.</p> <p>Comprehensive Hazard Mitigation Analysis (HMA) will be conducted by a BESS specialist independent Fire Protection Engineer following NFPA 855 (2023) guidelines and recommendations.</p>

sources, to supply the large volume of water required should be secured in the DCO.

- Means to retain and treat the large volume of water required to contain a thermal runaway should be secured in the DCO. This could include the use of bunding and collection tanks.*
- The spacing between BESS enclosures should comply with the 6m spacing (or larger if industry guidance is updated) recommended by the National Fire Chiefs Council. The distance of 6m, or larger if industry guidance is updated, should be secured in the DCO.*
- The Applicant's Unplanned Atmospheric Emissions from Battery Energy Storage Systems (BESS) - EN010131/APP/3.3 document should be updated to include consideration of a BESS thermal runaway as the primary hazard and not a fire. The Applicant's emission modelling should take account of the actual energy storage capacity of their system and not a small 100 kWh battery.*
- It is recommended the Applicant applies the Control of Major Accident Hazards (COMAH) Regulations to the design and operation of the BESS.*
- The requirement for two access routes to the BESS control room should be investigated.*

Additional risk assessments likely to be conducted at the detailed design stage are Fire Risk Analysis (FRA), Explosion Risk Analysis (ERA), Hazard and Operability Analysis (HAZOP). Comprehensive BESS 3rd Party risk analysis is sometimes automatically provided by Tier one BESS manufacturers and / or BESS integrators.

If the BESS system supplied differs from the specification considered for risk assessments and consequence modelling, then a full safety audit must be repeated for the new BESS system specification. These studies must be completed and signed off before construction commences.

On an annual basis an independent fire risk assessment is carried out. Insulation monitoring and arc fault monitoring will detect low grade faults before they are close to a fire risk. There is a fusing and protection at string level, string combiner box level, inverter level, switchgear level and substation level that will cascade in depending on the original location of the fault causing the fire. Equipment is built to contain a fire, especially the inverters and the substation. If a fire was to occur for example at an inverter, the fire will be contained to this specific inverter. The site boundaries and inter-row spaces provide a natural fire gap for containment of fire. There is a separation between combustible material and non-combustible material. Fire retardant cables are used. Regular testing and groundskeeping also help to minimise the likelihood of a fire.

The Applicant has embedded mitigation within the Scheme design and has included an **Outline Battery Fire Safety Management Plan** in its DCO application **[APP-222/7.1]**. This outline plan sets out how the Scheme proposes to mitigate and manage the potential fire risk posed by the BESS.

Contaminated water

As stated within 4.5.3 of the **Outline Battery Safety Management Plan [APP-222/7.1]** the Scheme's drainage strategy includes a separate system around the BESS with a combination of positive drainage and swales/infiltration basins around the perimeter of the battery system to act as a natural barrier to runoff or collecting runoff into an attenuation / storage lagoon. This will have automatic

and manual isolation systems to ensure that any firewater runoff is captured for analysis prior to disposal. This trapped water may then be reused as a potential source of firefighting water. This follows the management plan process as detailed in "Protocol for the disposal of contaminated water and associated wastes at incidents 2018" jointly issued by the Environment Agency, Northern Ireland Environment Agency, Water UK and Chief Fire Officers Association.

Emissions from a 100kWh battery can be applied to the Gate Burton BESS as the BESS at Gate Burton is a series of isolated battery systems. As such, a fire would take time to spread from one unit to another. It is therefore unlikely that there would be many alight at any one time. The amount of pollutant available to release to the atmosphere is fixed, and once it is burned, there is no further emission. As such the smaller fire assessed in the independent study is representative of the hourly emission rate at Gate Burton as only a small proportion of the total number of batteries could be burning at one time.

In terms of module spacing, The NFCC FRS guidance document states: " A standard minimum spacing between units of 6 metres is suggested unless suitable design features can be introduced to reduce that spacing. If reducing distances a clear, evidence based, case for the reduction should be shown." The Applicant can confirm that 6m separation will be observed unless UL 9540A unit or installation level testing and / or 3rd Party Fire & Explosion testing has demonstrated through heat flux data that distances can be reduced. Separation specifications must be in accordance with legislative code requirements available at detailed design stage. This will be provided within the detailed Battery Fire Safety Management Plan. Site specific CFD scenario and consequence modelling will be conducted to see if additional spacing is required. Test data and separation distances will be assessed by an independent Fire Protection Engineer.

A BESS fire suppression system, if integrated by the BESS OEM should conform to NFPA 855 (2023) guidelines, and the suppression system should be tested to UL 9540A latest standard or significant scale 3rd Party fire & explosion testing. The trend for BESS cabinet systems is not to integrate fire suppression systems and to demonstrate that a worst-case scenario is the safe burn out of a single BESS cabinet without fire brigade intervention, decommissioning is an easier process if stranded energy (live battery modules) risks are removed.

If a BESS enclosure is a container design (20ft, 40ft, 53ft) then a fire suppression system will probably need to be integrated unless a full free burn test has shown that both fire and explosive events can be safely contained. If the BESS enclosure is a walk-in design, then a fire suppression system must be installed. Fire suppression system performance as best practice should be benchmarked against free burn testing. An independent Fire Protection Engineer specialising in BESS should review all UL 9540A test results and any additional fire and explosion test data which has been provided and validate the suppression system design.

NFPA 855 (2023) confirms that water is the most effective battery fire suppression agent, therefore if a BESS FSS is integrated then a water-based system should be considered for each BESS enclosure designed to control or fully suppress a fire, without the intervention of LFRS. The suppression system must be capable to operate effectively in conjunction with a gas exhaust / ventilation system to minimise deflagration risks. System design and water supply requirements will be fully agreed with LFRS.

If the BESS system is a 'cabinet' type system designed to safely burn out to remove the risk of stranded energy in the battery systems, then full scale free burn testing will have been conducted to demonstrate that loss will be safely limited to one container without the intervention of LFRS. The automatic water-based system will have been tested to unit or installation level UL 9540A (latest edition) and will comply with performance criteria. An independent Fire Protection Engineer specialising in BESS will review all UL 9540A test results and any additional fire and explosion test data which has been provided.

In terms of the volume of water required, the Applicant intends to either build their own water supply to the Battery Energy Storage System, connecting into Anglian Water's 7" AC water main located in the A156 or provide tanks on site. The Applicant has been in discussions with the Lincolnshire Fire and Rescue Service who have advised that a water supply with a flow of 1900 litres per minute or 32 litres per second would be required to put out a battery fire should this occur. Sufficient space has been allowed for in the BESS area for these tanks should this be the option selected. LFRS could request an increase in this volume if the site location creates difficulties to bring supplementary water supplies to site in an acceptable incident response timeframe. The actual site

supply requirement will be decided at the detailed design stage, LFRS will request to see the BESS system fire test data and specify that an independent Fire Protection Engineer should validate the final water supply requirements. BESS design and site layout should minimise the requirement for direct FRS intervention in a thermal runaway incident i.e., direct hose streams or spray directly on BESS battery systems. LFRS intervention in worst case scenarios should be limited to boundary cooling of adjacent BESS / ESS units to prevent the fire from spreading. This strategy should be finalised with the LFRS and be clearly communicated in the Emergency Response Plan (ERP).

On top of this supply, a requirement of 20-30% additional capacity should be allowed for storage in the water run-off retention facility (legislation requires 10%). The proposed additional capacity allows for potential increases to rainfall volume from climate change and reduces BESS fire water run-off pollution concerns from a BESS fire.

The Applicants water storage and drainage strategy is based upon a baseline 2 hours supply at 1,900 litres per minute as per the National Fire Chief Council's guidelines. At the detailed design stage, water storage and drainage requirements will be agreed with the Lincolnshire Fire & Rescue Service based upon unit or installation level UL 9540A testing and / or 3rd party fire & explosion test data as specified in NFPA 855 (2023) for the selected BESS system. A specialist BESS independent Fire Protection Engineer will analyse all the BESS test data work with LFRS to agree on sufficient fire fighting water supplies for the site.

The drainage system designed at the detailed design stage will be capable of retaining the agreed volume of fire fighting water. A specific fire water management plan will be produced and include the detailed plans for containment, monitoring and disposal of contaminated fire water. Infrastructure shall be provided for the containment and management of contaminated fire water runoff from BESS. This can include bunding, sumps, and purpose-built impervious retention facilities.

Discussions with Anglian Water are ongoing and progress on discussions on a mains supply will be reported in future iterations of the Statement of Common Ground with Anglian Water, the first iteration of which is provided at D1 **[4.3J]**.

To retain flexibility, the current application documents allow for either option to be pursued.

The COMAH Regulations relate to the storage of 'dangerous substances' and the requirement to ensure that all necessary measures are taken to prevent major accidents involving dangerous substances, and to limit the consequences to people and the environment of any major accidents which do occur. The applicability of the COMAH Regulations is dependent on the substances being stored at Gate Burton / the BESS and in what quantities. It is unclear at this point whether the COMAH Regulations will apply to the design and operation of the BESS. Should it become clear that the COMAH Regulations do apply, then they will be complied with either before the commencement of construction or operation of the BESS, as is required. For example, if the COMAH Regulations do apply, then a notification of the dangerous substances stored at the site will be made to the competent authority (jointly the HSE and Environment Agency in this case) before construction commences, and a major accident prevention policy will be prepared before construction or site operations commence.

3. Appendix B

Appendix B – Applicant Response to Roy Clegg Submission

Table B1 – Applicant Response to EMF Concerns

WR	Summary	Applicant response
REP-089	<p>Summary EMF</p> <ol style="list-style-type: none"> 1. The Cottam Solar Project states: “that in the absence of information relating to the potential for impacts, the Proposed Development on fish species, the Inspectorate does not agree to scope this matter out”. 2. The ES should include a description of the sensitivity of relevant watercourses and any seasonal constraints on such crossings, assessing likely significant effects on riverine species where they are likely to occur”. 3. The developer has only made a minor consideration of EMFs in human life but nothing on the significant impact on aquatic life, flora and fauna with wildlife, and biodiversity, where all the later are intrinsically linked to each other. 4. Existing exposure standards are for humans only; aquatic life, flora and fauna and its wildlife are unprotected including within the safety margins of existing guidelines, which are inappropriate for trans-species sensitivities and different non-human physiology. 5. The developer has identified a myriad of cable runs in the project resulting in connections carrying up to 400Kv to transport electricity from the solar panels to the National Grid at Cottam Power Station using transformers, inverters etc., all of which transmit EMF’s. 	<ol style="list-style-type: none"> 1. No response required. 2. The Applicant has provided information on the approach to watercourse crossings in a comprehensive screening exercise that was undertaken for determining where open span bridges or culverts were required. This is contained within Appendix A of the signed Statement of Common Ground with the Environment Agency which was submitted at Deadline 1 [REP-014/4.3E]. The Environment Agency have agreed with this approach. 3. A comprehensive aquatic desk study has been completed (see Appendix 8-E Aquatic ecology report [APP-129/3.3]), along with targeted aquatic surveys, which has informed the ecological appraisal and impact assessment. 4. No attempt has been made to apply existing exposure standards for humans to important ecological features. All important ecological features identified within Chapter 8 of the ES [APP-017/3.1], are assessed with regard to their specific sensitivity to a particular impact pathway. 5. No response required. 6. The 400kV grid connection circuit is proposed to be underground and is anticipated to be buried to depth of at least 0.9m. Therefore, the potential sources of EMF that might act in-combination with other sources are removed.

6. The cables carrying power lines at ground level in the project of 400Kv will have a greater effect on Electromagnetic Fields than if they were 7 metres above ground level.

7. The magnetic fields created on the development site will be significantly stronger, and the effect of EMF will be distanced further away by at least 7 metres.

8. A magnetic field measuring 57.5 milligauss immediately beside a 230 kilovolt transmission line measures just 7.1 milligauss at 100 feet, and 1.8 milligauss at 200 feet, according to the World Health Organization in 2010.

9. This WR has shown that almost 100 years of research identifies that all species in aquatic life, flora and fauna and its wildlife and associated biodiversity are affected by EMF. Is the Developer, Examiner and the Secretary of State satisfied that there is no risk to any species from the effect of EMF and its features as a result of the Project?

7. As set out above, the cables will be buried to a depth of at least 0.9m which will greatly limit the transmission of any magnetic fields.

8. No response required, but the Applicant would again re-iterate that all cabling will be buried.

9. The Applicant acknowledges the research identified in the WR but highlights that there is no evidence of significant adverse effects to biodiversity from the specific elements of cabling being sought through this application. As set out above, the 400kV cable will be buried to a depth of at least 0.9m, with cable design following all relevant safety guidance. As such, the Applicant is satisfied that there is no potential for significant adverse effects on the important ecological features identified in **Chapter 8** of the ES **[APP-017/3.1]**.

Summary Aquatic Life

1. It is noted that the Cottam Solar Project states “that in the absence of information relating to the potential for impacts, the Proposed Development on fish species, the Inspectorate does not agree to scope this matter out. The ES should include a description of the sensitivity of relevant watercourses and any seasonal constraints on such crossings, assessing likely significant effects on riverine species where they are likely to occur”.

2. The rivers and oceans with their inhabitants are extremely important for the survival of us humans. The oceans regulate the climate of the planet and produce most of the oxygen. Millions of people depend on a healthy marine ecosystem for their livelihoods.

3. What happens when, through our ill-considered and selfish intervention, the rivers and seas can no longer maintain their vital functions for the entire planet?

1. The Applicant has provided information on the approach to watercourse crossings in a comprehensive screening exercise that was undertaken for determining where open span bridges or culverts were required. This is contained within Appendix A of the signed Statement of Common Ground with the Environment Agency which was submitted at **Deadline 1 [REP-014/4.3E]**. The Environment Agency have agreed with this approach.

2. No response required, but the Applicant would highlight that the Scheme will not impact the marine environment.

3. A comprehensive aquatic desk study has been completed (see **Appendix 8-E Aquatic ecology report [APP-129/3.3]**), along with targeted aquatic surveys, which has informed the ecological appraisal and impact assessment.

As stated in the **Framework CEMP [APP-224/7.3]**, the Scheme design has avoided the majority of watercourses and the construction of the Grid Connection Corridor will utilise non-intrusive methods (including offsets from the banks of the watercourses to protect riparian habitats) for the majority of watercourses, particularly those where the habitat quality is suitable for riparian

4. We are facing an ecological emergency with 15% of all UK wildlife under threat from extinction and our rivers are a critical factor in this.

5. The primary concern for aquatic species is from AC-ELF exposures from underwater cabling shown in WR1 and other technologies, not RF which is of more concern for ground-based and aerial species (24).

6. It is important that fish and other significant aquatic life species both rare and protected, or those on the endangered list are recognised and their existence continues and thrives.

7. Is the Developer, ExA and the Secretary of State satisfied that there is no risk to any aquatic species from the effect of EMF and its features as a result of the Project?

mammals, or where evidence of these species has been recorded. Set-backs of a minimum of 10m from the centreline of the watercourse is considered sufficient to mitigate for potential hazards such as chemical and soils spills into watercourses and avoid potential direct impacts to watercourses and species such as Otter and Water Vole.

4. No response required.

5. As set out above the 400kV cable will be buried beneath the bed of the River Trent and other watercourses as set out within Appendix A of the signed Statement of Common Ground with the Environment Agency which was submitted at **Deadline 1 [REP-014/4.3E]**. The design of the cable and buried depth adequately prevent any noticeable changes in EMF, including AC-ELF, at locations where sensitive aquatic species may occur, e.g. Salmon. In addition to this, the area of buried cable is incredibly small, when considering the migratory nature of many of the fish species mentioned, with individuals quickly transiting through the small area of buried cable.

6. A comprehensive aquatic desk study has been completed (see **Appendix 8-E Aquatic ecology report [APP-129/3.3]**), along with targeted aquatic surveys, which has informed the ecological appraisal and impact assessment.

7. Based on the responses provided above the Applicant is satisfied that there is no potential for significant adverse effects on the aquatic life identified in **Chapter 8** of the ES **[APP-017/3.1]**.

Summary Flora and Fauna and Wildlife

1. We may in fact know less about effects to humans than to other species. In this WR, focus is on exposures common in today's environment.

2. There is enough evidence to indicate we may be damaging species at ecosystem and biosphere levels across all taxa from rising background levels of anthropogenic non-ionizing electromagnetic fields (EMF) from 0 Hz to 300 GHz leaving wildlife unprotected.

1. No response required.

2 - 4 The Applicant acknowledges the research quoted in the WR but this does not provide any evidence that significant effects can arise from the specific elements of the Gate Burton Scheme. The Applicant re-iterates that the design of the buried cables is effective mitigation against any perceived or potential impacts on important ecological features identified in **Chapter 8** of the ES **[APP-017/3.1]**.

5 - 8. No response required.

9 - 11 As set out in the above response the Applicant acknowledges the research quoted in the WR but that this does not provide any evidence that

3. Despite classic assumptions that non-ionizing radiation cannot directly damage DNA, genotoxic effects have been seen in land-based, aerial, aquatic, and plant species at very low intensity RFR exposures far below ICNIRP/IEEE/FCC guidelines.
4. There are at least 48 papers showing DNA damage after exposure to RFR at < 0.4 W/kg [see Supplement 1 in reference (24)]. Insects are of special concern as populations are being decimated globally (24).
5. For centuries beekeepers had noticed curious movements in beehives, but Austrian ethologist Karl von Frisch finally interpreted that activity in the 1940s, winning the Nobel Prize in 1973 for what came to be known as the honey bee “waggle dance.”
6. Electro-ecological interplay between flowers and pollinators has also been known since the 1960s and is critical to pollen transfer from flowers to bees.
7. Since all food webs are uniquely tied together, there are negative cascading effects across all ecosystems.
8. There is no question that the huge diversity of pollinator species across the planet is suffering and that losses could be catastrophic with an estimated 90% of wild plants and 30% of world crops in jeopardy.
9. Taken as a whole, this indicates enough information to raise concerns about ambient exposures to radiation at ecosystem levels. Wildlife loss is often unseen and undocumented until tipping points are reached. It is time to recognize ambient EMF as a novel form of pollution and develop rules at regulatory agencies that designate air as ‘habitat’ so EMF can be regulated like other pollutants.
10. There is no question that the huge diversity of pollinator species across the planet is suffering and that losses could be catastrophic with an estimated 90% of wild plants and 30% of world crops in jeopardy. There is a likelihood that rising EMF background levels play a significant role.
11. We may already be overwhelming some species' natural biological sensors that evolved over eons. Such heightened

significant effects can arise from the specific elements of the Gate Burton Scheme. The Applicant re-iterates that the design of the buried cables is effective mitigation against any perceived or potential impacts on important ecological features identified in **Chapter 8** of the ES [APP-017/3.1]. **12.** Based on the responses provided above the Applicant is satisfied that there is no potential for significant adverse effects on the flora and fauna identified in **Chapter 8** of the ES [APP-017/3.1].

sensitivities function far beyond human perception and create unique vulnerabilities that can easily be disturbed by novel man-made fields.

12. Is the Developer, ExA and the Secretary of State satisfied that there is no risk to any species of flora and fauna and wildlife from the effect of EMF and its features as a result of the Project?

Summary Biodiversity

1. There has been an unprecedented rate of biodiversity decline in recent decades according to the International Union for Conservation of Nature.
2. Their 2018 list showed that 26,000 species are threatened with extinction, which reflected more than 27% of all species assessed. This was greatly increased from their 2004 report that found at least 15 species had already gone extinct between 1984 and 2004, and another 12 survived only in captivity.
3. Many years of research studying the effects from both natural and man-made EMF over a wide range of frequencies, intensities, wave forms, and signalling characteristics have been observed in all species of animals and plants.
4. The database is now voluminous with studies showing biological effects at both high and low-intensity man-made exposures, many with implications for wildlife health and viability.
5. Sensitive magnetoreception allows living organisms, including plants, to detect small variations in environmental EMF and react immediately as well as over the long term, but it can also make some organisms exquisitely vulnerable to man-made fields.
6. EMF may be contributing more than we currently realize to species' diminishment and extinction. Exposures continue to escalate without understanding EMF as a potential causative and/or co-factorial agent. It is time to recognize ambient EMF as a potential novel stressor to other species.

1-3. No response required.

4 - 7 The Applicant acknowledges the research quoted in the WR but this does not provide any evidence that significant effects can arise from the specific elements of the Gate Burton Scheme. The Applicant re-iterates that the design of the buried cables is effective mitigation against any perceived or potential impacts on important ecological features identified in **Chapter 8** of the ES [APP-017/3.1]. **8.** No response required.

9. Based on the responses provided above the Applicant is satisfied that there is no potential for significant adverse effects on biodiversity identified in **Chapter 8** of the ES [APP-017/3.1].

7. There are two prevalent misconceptions today about how low-level non-ionizing EMF couples with and affects non-human species: i). There is no need for environmental concern since exposures as currently regulated are too low to cause effects; and ii). Existing exposure standards for humans are sufficient to cover non-human species too. Neither supposition is accurate.
8. We have a long over-due obligation to consider potential consequences to other species – an obligation we have thus far not considered before more species go extinct.
9. Is the Developer, ExA and the Secretary of State satisfied that there is no risk to any species of flora and fauna and wildlife from the effect of EMF and its features as a result of the Project?

Table B2 – Applicant Response BESS Safety Concerns

WR	Summary	Applicant response
REP-089	<p>Written Representation (WR1) Introduction and BESS Procurement and Testing</p> <p>Introduction</p> <ol style="list-style-type: none"> Batteries can be said to be the beating heart of all large-scale solar farms and like all hearts require continuous monitoring and maintenance to ensure to functionality and reliability. At the very centre of this, is accountability, traceability, and transparency throughout a battery's life. Gate Burton Solar Project is said to generate 500MW of energy and have a BESS of 500MW capable of supplying 160,000 homes with electricity, according to the developer's submission. 	<p>1 & 2 – No response required.</p> <ol style="list-style-type: none"> Noted The Scheme comprises the construction, operation, maintenance and decommissioning of a solar photovoltaic (PV) electricity generating facility and energy storage facility with a total capacity exceeding 50 megawatts (MW) and export connection to the National Grid and is therefore classed as a Nationally Significant Infrastructure Project (NSIP) in accordance with the Planning Act 2008. The role the proposed development can play in the electricity supply system and beyond is included within the Statement of Need [APP-004/2.1]. The Scheme, as a leading large-scale solar scheme in Great Britain, represents c. 2% of the additional solar generation capacity projected as required by 2030 in those of National Grid's Future Energy Scenarios that are compatible with Net-Zero. In this context, the Scheme is an essential stepping stone towards the future of efficient decarbonisation through the deployment of

3. The UK power usage is approximately 300TWh per annum and the amount of energy produced by a large scale 500MW solar farm contributes only about 0.15% to this requirement and not as often stated "...large amounts of green power..."
 4. While technically the capacity of the proposed development is above 50MW, the degree of intermittency effectively reduces this to between 9-11% in practice. With potential future curtailment foreseen by National Grid, this would be further reduced. The average output is likely to be lower than 50MW over the lifetime of the asset. Therefore, the proposals do not fall within the 50MW threshold to meet the NSIP criteria.
 5. A clear understanding of the role the proposed development can play in the electricity supply system and beyond, and the amount of energy produced and associated impact has not been submitted by the developer. For example, intermittency of production, curtailment, the need for alternative supply, inability to store volume of power seasonally, the effect on the food supply chain and the need for using batteries have not been demonstrated and need to be included in the submission.
 6. The Energy security secretary Grant Shapps will this week (10/07/2023) outline plans for Britain's atomic power's renaissance and 2050 emissions commitment. The secretary of state for energy security and net zero, Grant Shapps, has chosen the London Science Museum as the venue to set out his ambitions for the UK's nuclear programme. He is expected to illuminate the path towards the government's existing commitment to build 24 gigawatts of nuclear power capacity – the equivalent of a quarter of Britain's total generating capacity – by 2050.
- large-scale, technologically and geographically diverse lowcarbon generation assets. The environmental impact of the Scheme has been assessed within the Environmental Statement.
- 6 and 7. No response required.
8. The Applicant disagrees that the submission of the project is littered with missing and essential information. In terms of the specification of the batteries to be used in the BESS as stated within the Outline Battery Safety Management Plan is likely to be a lithium ion battery cell type, however will be confirmed as part of detailed design as battery technology is a developing technology . In terms of other details relating to the battery specification such as metal content in the batteries, type of wafer insulation and testing conditions, Manufacturers Warranties, specific failure rates or life expectancy of batteries these details will also be confirmed at detailed design. In terms of life expectancy, as stated in **Appendix 2-A Bess and Substation Description [APP-113/3.3]**, it is assumed that the batteries would be replaced approximately every 15 years. Works in relation to the BESS must not commence until a battery safety management plan (BSMP) has been submitted to and approved by the relevant planning authorities. This must be substantially in accordance with the **Outline Battery Safety Management Plan [APP-222/7.1]** and is secured by requirement 6 of Schedule 2 of the draft DCO.

7. But mini reactors present an opportunity to harness the benefits of modular manufacturing techniques to cut the costs of full-scale construction and speed up building times. The government considers nuclear power a crucial part of its ambition to reach its 2050 net zero emissions target and its highly ambitious 2035 target to cut carbon emissions from the electricity system. A new nuclear dawn should also create highly skilled engineering and manufacturing jobs.

BESS Procurement and Testing

8. The Outline Battery Safety Management Plan Document Reference: EN010131/APP/7.1 states: 3.1.1 Gate Burton Energy Park Ltd is a subsidiary of Low Carbon, an experienced developer of electricity generation and storage projects across the UK, EU and the US at the forefront of the storage market, successfully deploying lithium-ion battery projects at scale. And further announces at 3.1.2 is therefore experienced in conducting thorough tendering processes for procuring battery storage equipment and services, and in 3.1.3 gains access to the integrators' whole system testing labs, undergoing the full cycle of installation, commissioning, and operation. 3.1.4 states the Applicant only considers and engages with suppliers and products that conform to ISO 9001, ISO 14001, OHAS 18001, CE, and local regulation, auditing both technical and financial aspects. This high profile does not rest easily when looking at the submission of the project which is littered with missing and essential and vital information on which to make a comment or judgement. Many examples are available so lets us start with the missing specification for the storage batteries to be used in the BESS, why is it so difficult to set down what the developer is proposing now? Detailed Specification, Testing and Certification of batteries and approval by an independent body reveals so much knowledge and confirmation about a product or

service, none of which have been submitted by the developer. There is no information about the metal content in the batteries, type of wafer insulation and testing conditions, Manufacturers Warranties, specific failure rates or life expectancy of batteries. Given the hesitancy in providing information this then begs the question “what are the seen as the supply chain problems facing the Developer, what is the risk to continuity of supply, and can these be overcome? We are not able to satisfactorily comment on this item and the Examiner is requested to set aside and not make any decision, until the specifications are provided, and the opportunity to make further comments.

Written Representation (WR2) on Safety Risks, Regulations and Guidelines when using Lithium-ion Batteries

Safety Risks, Regulations and Guidelines when using Lithium-Ion Batteries

1. From the manufacturer to the dealer to the consumer, back to the manufacturer, or to the remanufacturer / recycler, Lithium-ion batteries have a long journey to make in their lifetime.
2. Yet, with many people’s safety at stake, on every move and stop they need to be handled with the utmost care. That’s why lithium-ion batteries come with many regulations the Inspector is asked to consider.
3. Even though their battery chemistry is considered one of the safest, lithium-ion batteries still pose significant risks when not handled carefully.
4. The high-voltage nature of a lithium-ion battery comes with electrical hazards, such as short circuit,

1-7 – No response required.

8. The Applicant disagrees that there is a significant and unacceptable danger to health and indeed human life; as well as to farm animals and agricultural crops in the food chain. Health and Safety is a core principle for the Applicant whose group company is both an asset owner and operator. The Applicant has brought in Dr Paul Christensen from Newcastle University to advise on the latest worldwide safety protocols associated with Lithium-Ion technology, along with the Lincolnshire Fire and Rescue Service to advise on design and a safety management plan and to provide the emergency services with relevant information if requested. This will be refreshed prior to construction to ensure the highest safety standards are incorporated in the design and ensure minimal impact on the environment. The Applicant has had a virtual meeting with Lincolnshire’s Fire and Rescue team and this engagement will continue throughout the development, construction and operation of the Scheme. The Applicant has embedded mitigation within the Scheme design and has included an **Outline Battery Fire Safety Management Plan [APP-222/7.1]** in its DCO application and manage the potential fire risk posed by the BESS.

9-19 No response required.

20. An **Outline Battery Safety Management Plan [APP-222/7.1]** is included within the DCO application which includes a description of the measures to be

electrocution, electric shock or burning, whereas the chemical component inside the battery (the electrolyte) could leak out and cause intoxication or corrosion.

Lithium-ion batteries are prone to thermal runaway.

5. **If the temperature exceeds a certain threshold**, the cells begin to vent hot gasses, which increases the temperature even further, and ultimately leads to ignition, explosion, and significantly dangerous fires.

The larger the battery storage, the greater the risk of a runaway fire.

6. In the event of a fire, lithium-ion batteries emit a cloud of highly toxic and dangerously high Hydrogen Fluoride, which can spread over distances of 1-2 miles, potentially causing death or permanent visual defects, blindness or chronic lung disease and long-term illnesses to residents.
7. Hydrogen fluoride goes easily and quickly through the skin and into the tissues in the body. There it damages the cells and causes them not to work properly. The gas, even at low levels, can irritate the eyes, nose, and respiratory tract. Breathing in hydrogen fluoride at high levels can cause death from an irregular heartbeat or from fluid build-up in the lungs. At lower levels breathing hydrogen fluoride can damage lung tissue and cause swelling and fluid accumulation in the lungs (pulmonary oedema). Eye exposure to hydrogen fluoride may cause prolonged or permanent visual defects, blindness, or destruction of the eye. People who do survive after being severely injured by breathing in hydrogen fluoride may suffer lingering chronic lung disease.

implemented to ensure all safety requirements are met. A detailed Battery Safety Management Plan (BSMP) will be submitted to and approved by the relevant planning authorities and local fire and rescue services. This must be substantially in accordance with the **Outline Battery Safety Management Plan [APP-222/7.1]** which is secured by requirement 6 of Schedule 2 of the draft DCO. With regard to other environmental and safety aspects, the **Framework CEMP [APP-224/7.3]**, **Framework OEMP [APP-225/7.4]**, and **Framework DEMP [APP-226/7.5]**, secure the mitigation measures required throughout the lifetime of the Scheme. Local authorities, the local fire and rescue services, and Health and Safety Executive has been consulted during EIA Scoping and Statutory Consultation, to allow integration of their feedback into the design for which consent is being sought. This consultation will carry on during detailed design post-consent, as required in particular by the **Outline Battery Safety Management Plan [APP-222/7.1]**. Health and safety of the site would also be managed by the contractor and site operator through management plans, required by law to be in accordance with the Health and Safety at Work Regulations.

21. In terms of how long a battery will last, as stated within the **Outline Battery Safety Management Plan [APP-222/7.1]** different battery systems have different topologies of control and safety systems that extend all the way to, in some measures, cell level. It is likely that the selected system will have a Battery Management System (BMS) which predicts the ageing of the cells in the LiBESS and alerts the operator when modules need maintenance or replacing. As stated in **Appendix 2-A Bess and Substation Description [APP-113/3.3]**, it is assumed that the batteries would be replaced approximately every 15 years.

In terms of what will happen to the spent batteries, as stated within the **Outline Battery Safety Management Plan [APP-222/7.1]** The Applicant will follow the hierarchy of waste management throughout the life of the Scheme as follows:

- Reduce – lithium ion batteries have a finite life based on a number of factors, primarily the total number of cycles undertaken. The operation will attempt to manage the degradation by the selection of services and cycling that maximises the overall life. Consideration will be given to supplementation of the equipment or operation at a lower output.
- Recycle – The supplying manufacturer will have obligations under the Waste Batteries and Accumulators Regulations 2009 (as amended) (or such equivalent

- 8. Will the Planning Inspector now decide against the proposals on the grounds of the significant and unacceptable dangers to health and indeed human life; as well as to farm animals and agricultural crops in the food chain?**
- 9. Safety regulations in every phase of lithium-ion batteries' life cycle There appears to be no updated information in respect of regulations and guidelines for lithiumion batteries, but the following three documents appear to be those in use awaiting updates:**

- Batteries Directive 2006/66/EC: This is an EU-Directive that provides guidelines to the member states concerning the manufacture and disposal of batteries in the EU. Its aim is to improve the environmental performance of batteries and accumulators. This directive will soon be replaced with a new Regulation, that will level the playing field for all EU member states.
- General Product Safety Directive (GPSD): The GPSD provides standards for product safety to protect consumers from potential hazards, by means of EN standards. The relevant EN standard for pg. 4 lithium-ion batteries is EN 60086-4. It serves as a reference point for specifications and technical solutions at the product design stage. Following EN standards is not mandatory but highly recommended.
- ADR (International Carriage of Dangerous Goods by Road) The ADR is a UN-document, adopted by the European Union, which regulates the transport of hazardous goods over land. Following ADR rules is

regulations in force at the time of decommissioning) and will be contractually obliged to offer a recycling service.

- Recovery – The recycling should allow any useful materials to be recovered and re-enter the supply chain.
- Disposal – Any disposal of batteries shall be undertaken in compliance with all applicable Laws and all regulatory requirements, product stewardship, registration disposal and recycling or take back requirement.

mandatory for transportation of lithium-ion batteries. The specific requirements for this type of battery can be found under article 2.2.9.1.7. All lithium-ion batteries are Class 9 and get the UN number 3480.

10. **Based on the above; depending on a battery's condition and the phase in its life cycle, the risks and thus the safety rules vary.**
11. **What type of battery are you transporting?** Let's look at the different options and their ADR requirements.
12. **New lithium-ion batteries**
13. New batteries at the beginning of their journey are in their most stable state (except for manufacturing defects), as they are charged up to 60 to 70% to ensure stability. The risks are relatively low, but caution is still required during transport and handling. Moving the batteries could pose minor thermal and mechanical risks, which is why all ADR requirements, including labelling and packing, are to be always taken seriously. ADR labelling: • Class 9, • UN 3480, • "LI-ION BATTERY" ADR packing: packing instructions P903 or LP903
14. **Used lithium-ion batteries for reuse.**
15. Battery Directive 2006/66/EC states that every battery producer has a take-back obligation. The most desirable options are re-use or remanufacturing, meaning that the battery maintains the status of 'product' (as opposed to 'waste'). However, in practice, recycling is currently still the most common option. In case of reuse or remanufacturing, Li-ion batteries on their way to their new purpose are labelled and packed the same way as new Li-ion batteries.

16. ADR labelling: • Class 9, • UN 3480, • “LITHIUM-ION BATTERY” ADR packing: • packing instructions P903 or LP903

Undamaged waste lithium-ion batteries

17. When a used battery can't be remanufactured or reused for a different purpose, it gets the 'waste' status and its ADR specifications change. An undamaged waste battery will be taken to the recycler, following these labelling and packing rules:
ADR labelling: • Class 9, • UN 3480. • “LITHIUM-ION BATTERY FOR RECYCLING” ADR packing: • packing instructions P909, • SP 377

Damaged and defective lithium-ion batteries

18. Damaged lithium-ion batteries pose the biggest risk, as they are transported in a potentially highly unstable state. For packing, there is a distinction to be made between critical and non-critical damaged batteries. Damaged batteries in a critical state need to be packed in the safest way possible, to avoid accidents. ADR labelling: • Class 9, • UN 3480, • “DAMAGED/DEFECTIVE LITHIUM-ION BATTERIES” ADR packing: • Packing instructions P908 or LP904 if not critical, • Packing instructions P911 or LP906 if critical, • SP 376

Safe storage of lithium-ion batteries

19. After the batteries have safely arrived at their destination, sometimes they need to be stored for a while. Some countries have specific regulations concerning storage, others don't. There appears to be no up to-date requirements in the form of Standards for use of lithium batteries, no guidelines for the manufacture and disposal, and no regulations for the transport of batteries in the UK.

20. **Given this situation it would seem reasonable to expect the proposed solar farm developers to have included Risk Assessments and Method Statements for dealing with every phase of a battery's life.**
21. **Will the Planning inspector recognise these missing significant elements in the developer's submissions?** How long will a battery last? 3 years, 10 years or 15 years? specification what will the effect be on supply to the grid, how long will it take to replace the batteries and what will happen to the spent batteries?
22. This is the main question that everyone wants to know. Unfortunately, it is not easy to give a definitive answer. There are many variables involved.
23. Items such as the temperature under which they are used, whether they have been stored, how quickly they have been charged and discharged, whether they have been left discharged for any period, and a whole number of other factors.
24. Another big variable is the question of what counts as a charge / discharge cycle. Sometimes the battery will have undergone a deeper charge cycle than others, sometimes it may be a 20% to 80%, other times it may only be a top up, say 30% to 60% and whether this counts as a cycle.
25. The Environmental Statement, Volume 3, Appendix 2-A Bess and Substation states at 1.2.5. Batteries and inverters would be replaced approximately every

15 years suggesting that the batteries will last much longer.

26. The proposed specification for a LFP 280Ah cell type battery, from 1.2.4., taken from many sources on the internet suggest a Cycle life of 2,000 which at best would be 1000 charges and discharges per day, or just under 3 years.

1. Written Representation (WR3) on Fire Risks in Large Scale BESS

2. Fire Risks in Large Scale BESS

3. A BESS carries a risk of “thermal runaway”, more commonly known as “battery fire”, where overheating in a single cell can spread to neighbours within a container leading to further energy release. These are not strictly fires in that no oxygen is required, which of course means that conventional methods of fire control are unlikely to succeed.
4. “They represent an electrochemical discharge between chemical components that are self-reactive. They do not require air or oxygen at all to proceed.”
5. A BESS fire can result in the release of toxic and inflammable gases and chemicals:
6. “They evolve toxic gases such as Hydrogen Fluoride (HF) and highly inflammable gases including Hydrogen (H₂), Methane (CH₄), Ethylene (C₂H₄) and Carbon Monoxide (CO). These in turn may cause further explosions or fires upon ignition. The chemical energy then released can be up to 20 times the stored electrochemical energy.”

1 to 17. No response required.

18. The Applicant has brought in Dr Paul Christensen from Newcastle University to advise on the latest worldwide safety protocols associated with Lithium-Ion technology, along with the Lincolnshire Fire and Rescue Service to advise on design and a safety management plan and to provide the emergency services with relevant information if requested. This will be refreshed prior to construction to ensure the highest safety standards are incorporated in the design and ensure minimal impact on the environment. The Applicant has had a virtual meeting with Lincolnshire’s Fire and Rescue team and this engagement will continue throughout the development, construction and operation of the Scheme.

The detailed design phase of individual BESS sites will consider the lifecycle of the battery system from installation to decommissioning. At the detailed design stage, risk assessment tools will be utilised together with detailed consequence modelling to provide a comprehensive site operations and emergency response safety audit.

The battery system mitigation measures adopted in a final Battery Fire Safety Management Plan, will reflect the latest BESS safety codes and standards applicable at that stage. Mitigation measures will be discussed and coordinated with LFRS.

A Failure Modes and Effects Analysis (FMEA) of the BESS (BS EN IEC 60812) will be conducted to lay the foundation for predictive maintenance requirements and compliment the fault indicator capabilities of the BMS data analytics system.

7. But once a fire is underway in a container the only possible response is to allow it to continue to burn, continually apply water to stop it spreading and wait for it to burn out.
8. **Risk of Critical Event and Fire.**
9. Whilst this is new technology the effect of a critical event and fire is becoming understood. With a handful of sites in the UK there has been one BESS fire in Liverpool and many fires worldwide it is leading to the conclusion that the probability of a BESS Critical Event is significant and real.
10. Despite the experience of BESS fires and known toxins, the current legislation to control the choice and operation of BESS in the UK can best be described as “light touch”.
11. There is no minimum distance from homes for the location of a BESS which in theory could be placed next to accommodation.
12. A fire, near a residential area in a Liverpool suburb in September 2020, threatened to engulf the area in a toxic plume of gas, while debris was blasted up to 75ft away. Efforts to put out the blaze were hampered after water hydrants proved 'inadequate', the report by Merseyside Fire & Rescue Service found. The fire 59 hours to extinguish was caused by an explosion at the controversial mega-battery site.
13. The Liverpool BESS fire, using the same NEC system as built in Northern Ireland at Mullavilly and Drumkee BESS's was theoretically protected by a suppression system that failed to activate and would not have had any effect anyway, as the investigator Comprehensive Hazard Mitigation Analysis (HMA) will be conducted by a BESS specialist independent Fire Protection Engineer following NFPA 855 (2023) guidelines and recommendations.
- Additional risk assessments likely to be conducted at the detailed design stage are Fire Risk Analysis (FRA), Explosion Risk Analysis (ERA), Hazard and Operability Analysis (HAZOP). Comprehensive BESS 3rd Party risk analysis is sometimes automatically provided by Tier one BESS manufacturers and / or BESS integrators.
- If the BESS system supplied differs from the specification considered for risk assessments and consequence modelling, then a full safety audit must be repeated for the new BESS system specification. These studies must be completed and signed off before construction commences.
- On an annual basis an independent fire risk assessment is carried out. Insulation monitoring and arc fault monitoring will detect low grade faults before they are close to a fire risk. There is a fusing and protection at string level, string combiner box level, inverter level, switchgear level and substation level that will cascade in depending on the original location of the fault causing the fire. Equipment is built to contain a fire, especially the inverters and the substation. If a fire was to occur for example at an inverter, the fire will be contained to this specific inverter. The site boundaries and inter-row spaces provide a natural fire gap for containment of fire. There is a separation between combustible material and non-combustible material. Fire retardant cables are used. Regular testing and groundskeeping also help to minimise the likelihood of a fire.
- The Applicant has embedded mitigation within the Scheme design and has included an **Outline Battery Fire Safety Management Plan in its DCO application [APP-222/7.1]**. This outline plan sets out how the Scheme proposes to mitigate and manage the potential fire risk posed by the BESS.
19. No response required.

states: Although there was a fire suppression system in the container, the speed of propagation indicated that this hadn't activated.

14. It was thought that activation of the suppression system would have had little or no effect on the resultant fire/explosion.
15. In the town of Surprise, Arizona, a recent grid-scale battery system installed caught fire and an explosion injured four fire service personnel. Large flames were reported flames of 50-75 feet being fed by flammable liquids coming from the cabinets.
16. Professor Sir David Melville CBE, BSc, PhD, CPhys, FInstP, Sen Mem IEEE(USA) of The Faversham Society and recognised as one of the leading experts on Solar Farms and BESS notes that:
17. There is however guidance for the Insurance industry in the form of a Technical Guidance from Allianz Risk Consultancy entitled Battery Energy Storage Systems (BESS) Using Liion Batteries and quoted extensively from this detailed publication which concluding that 'BESS using lithium-ion batteries are susceptible to thermal runaway and have been involved in several serious fires in the last few years. The document recognises the lack of guidelines and highlights current knowledge gaps; describes the loss experience due to BESS fires in Hawaii, Arizona, Wisconsin and Belgium; describes the hazards; and makes detailed recommendation for the planning of BESS in relation to: Fire and Rescue Services; Construction and Location; Material, Equipment and Design; Ventilation and Temperature Control; Gas and Smoke Detection; Fire Protection and Water Supply; and Maintenance.

18. We respectfully ask that the risks associated with the deployment of large-scale BESS, must be addressed in order to avoid the issues clearly highlighted by the Deputy Fire Safety Commissioner of the London Fire Brigade when he said:

19. **“If we know some things could fail catastrophically or it could have those effects,” he said, “it’s going to be a difficult day if one of us is standing there in court saying we knew about it but we didn’t do anything.”**

Written Representation (WR4) on Water Environment 5: Water Environment

Some of the key issues of BESS incidents involve management of toxic and flammable gases and containment of contaminated fire water run off – none of which can be contained within a building or security fence.

Thermal runaway cannot be controlled like a regular (air-fuel) fire. The only way to mitigate “reignition” (a regular report of eyewitnesses) is by thorough cooling. Water is the only fire-fighting material with the necessary thermal capacity. Sprinkler systems, though with good records in conventional building fires, are likely to be completely inadequate. The purpose of the water is absorbing a colossal release of energy. The Hill/DNV report [8] called for so-called “dry pipe” systems allowing first responders to connect very large water sources to the interior without having to access the interior.

It is critical to appreciate that all parts of the battery system must be cooled down. Playing water on a battery “fire” may cool the surface, but so long as Li-ion cells deep inside the battery remain above about 150°C, “re-ignition” events will continue. It is not sufficient to estimate water requirements

Water volume for a fire

In terms of the volume of water required, the Applicant intends to either build their own water supply to the Battery Energy Storage System, connecting into Anglian Water’s 7” AC water main located in the A156 or provide tanks on site. The Applicant has been in discussions with the Lincolnshire Fire and Rescue Service who have advised that a water supply with a flow of 1900 litres per minute or 32 litres per second would be required to put out a battery fire should this occur. Sufficient space has been allowed for in the BESS area for these tanks should this be the option selected. LFRS could request an increase in this volume if the site location creates difficulties to bring supplementary water supplies to site in an acceptable incident response timeframe. The actual site supply requirement will be decided at the detailed design stage, LFRS will request to see the BESS system fire test data and specify that an independent Fire Protection Engineer should validate the final water supply requirements. BESS design and site layout should minimise the requirement for direct FRS intervention in a thermal runaway incident i.e., direct hose streams or spray directly on BESS battery systems. LFRS intervention in worst case scenarios should be limited to boundary cooling of adjacent BESS / ESS units to prevent the fire from spreading. This strategy should be finalised with the LFRS and be clearly communicated in the Emergency Response Plan (ERP).

On top of this supply requirement of 20-30% additional capacity should be allowed for storage in the water run-off retention facility (legislation requires 10%). The proposed additional capacity allows for potential increases to rainfall volume from climate change and reduces BESS fire water run-off pollution concerns from a BESS fire.

based on calculations assuming water reaches everywhere, uniformly. For example, in the recent Tesla car fire [2] the BEV battery kept re-igniting, took 4 hours to bring under control and used 30,000 (US) gallons of water (115 m³). This was for a 100 kWh BEV battery, designed with inter-cell thermal isolation barriers.

In the case of Sunnica, the Local Authorities have suggested that water supplies of 1900 litres per minute for 2 hours (228 m³) will be needed. But this is grossly inadequate.

Using the above in the Tesla BEV fire experience, this amount of water would suffice for just two Tesla Model S car fires.

Scaling this up to even the smallest 2 MWh BESS such as that in McMicken, which contains thermal runaway cannot be controlled like a regular (air-fuel) fire. The only way to mitigate “re-ignition” (a regular report of eyewitnesses) is by thorough cooling.

A liquid coolant leak caused thermal runaway in battery cells which started a fire at the 300MW/450MWh Victorian Big Battery in Australia in which 900,000 litres of water was disposed of from the site.

Water is the only fire-fighting material with the necessary thermal capacity. Sprinkler systems, though with good records in conventional building fires, are likely to be completely inadequate. The purpose of the water is absorbing a colossal release of energy. The Hill/DNV report, called for so-called “dry pipe” systems allowing first responders to connect very large water sources to the interior without having to access the interior.

The Applicants water storage and drainage strategy are based upon a baseline 2 hours supply at 1900 Litres per minute as per the National Fire Chief Council's guidelines. At the detailed design stage then water storage and drainage requirements will be agreed with the Lincolnshire Fire & Rescue Service based upon unit or installation level UL 9540A testing and / or 3rd party fire & explosion test data as specified in NFPA 855 (2023) for the selected BESS system. A specialist BESS independent Fire Protection Engineer will analyse all the BESS test data work with LFRS to agree on sufficient fire fighting water supplies for the site.

The drainage system designed at the detailed design stage will be capable of retaining the agreed volume of fire fighting water. A specific fire water management plan will be produced and include the detailed plans for containment, monitoring and disposal of contaminated fire water. Infrastructure shall be provided for the containment and management of contaminated fire water runoff from BESS. This can include bunding, sumps, and purpose-built impervious retention facilities.

Discussions with Anglian Water are ongoing and progress on discussions on a mains supply will be reported in future iterations of the Statement of Common Ground with Anglian Water, the first iteration of which is provided at D1 [4.3J]. To retain flexibility, the current application documents allow for either option to be pursued.

Water Contamination

An **Outline Drainage Strategy** is provided in **Appendix 9-C [APP-139 to 141/3.3]**. Surface water runoff across the Solar and Energy Storage Park will be discharged to ground through the use of sustainable drainage systems (SuDS) to provide attenuation (both in terms of storage capacity and water quality treatment).

Emergency Response Plan (ERP) document stands separate from the Battery Safety Management Plan (BSMP). The ERP will be in place prior to construction, developed through construction and set out as fixed for operation. It will be written in conjunction with Lincolnshire Fire and Rescue Service and

“Clean agent” fire suppression systems are a common fire suppression system in BESS but are totally ineffective to stop “thermal runaway” accidents. The McMicken explosion was an object lesson in this. The installed “clean agent” system operated correctly, as designed, on detection of a hot fault in the cabin. There was no malfunction in the fire suppression system, but it was completely useless because the fire was not a conventional fuel-air fire, it was a thermal runaway event. Only water will serve in thermal runaway.

Indeed, in the McMicken explosion the “Novec 1230” clean agent arguably contributed to the explosion by creating a stratified atmosphere with an air/Novec 1230 mixture at the bottom and inflammable gases accumulating at the cabin top.

A significant volume of water will be required to cool a BESS fire. It will be contaminated with highly corrosive hydrofluoric acid and other hazardous chemicals.

It is suggested that those responsible for Fire Services, study the Hill/DNV report and the related Underwriters Labs report, act upon their recommendations. Then make realistic, physics-based, calculations of the water quantities required and be available at every single BESS cabin.

Water Contamination

It is important to recognise that the rivers Trent and Till run through the proposed site raising significant questions about the amount of water required and contamination control that a critical event of a fire would result in environmental damage from toxic run-off.

In addition, the field adjacent to the site is an area of flooding which will potentially further increases toxic run-off risk and critical event control.

will include the battery OEMs advices/manuals, best practice guidance (NFPA), practical limitations of the site and with best practice around the equipment installed and layout, details of contaminants and how these need to be managed. The commitment to provide an ERP is secured through the **Outline Battery Fire Safety Management Plan [APP-222/7.1]**

The Applicant has embedded mitigation within the Scheme design and has included an **Outline Battery Fire Safety Management Plan in its DCO application [APP-222/7.1]**. This outline plan sets out how the Scheme proposes to mitigate and manage the potential fire risk posed by the BESS.

Module spacing

In terms of module spacing, The NFCC FRS guidance document states: " A standard minimum spacing between units of 6 metres is suggested unless suitable design features can be introduced to reduce that spacing. If reducing distances a clear, evidence based, case for the reduction should be shown." The Applicant can confirm that 6m separation will be observed unless UL 9540A unit or installation level testing and / or 3rd Party Fire & Explosion testing has demonstrated through heat flux data that distances can be reduced. Separation specifications must be in accordance with legislative code requirements available at detailed design stage. This will be provided within the detailed Battery Fire Safety Management Plan. Site specific CFD scenario and consequence modelling will be conducted to see if additional spacing is required. Test data and separation distances will be assessed by an independent Fire Protection Engineer.

A BESS fire suppression system, if integrated by the BESS OEM should conform to NFPA 855 (2023) guidelines, and the suppression system should be tested to UL 9540A latest standard or significant scale 3rd Party fire & explosion testing. The trend for BESS cabinet systems is not to integrate fire suppression systems and to demonstrate that a worst-case scenario is the safe burn out of a single BESS cabinet without fire brigade intervention, decommissioning is an easier process if stranded energy (live battery modules) risks are removed. If a BESS enclosure is a container design (20ft, 40ft, 53ft) then a fire suppression system will probably need to be integrated unless a full free burn test has shown that both fire and explosive events can be safely contained. If

The following statements from the Developers Submission are noted for reference: 9.4.13 Should there be a fire in the BESS Compound, then water would be obtained from a mains connection at the A4156. It has been determined that a supply of 1,900 litres per minute of water would be required. Given that this supply would be for an emergency event for which the probability of occurrence would be low given best practice management of the Scheme, it is assumed that this would not have a significant impact on Anglian Water's potable water resource. At the time of writing (January 2023), a Point of Connection (PoC) application is being progressed with Anglian Water for this connection and to confirm the availability of supply. Should this approach not be suitable, then tanks of water would be located within the Solar and Energy Storage Park to store the necessary volume needed for firefighting purposes within the BESS Compound.

9.9.54 The BESS Compound will require fire water tanks to suppress a fire, in the unlikely event that one breaks out in the BESS containers. Fire water runoff may contain particles from a fire. In the unlikely event of fire water being discharged, the runoff must be contained and tested/treated before being allowed to discharge to the proposed SuDS and then infiltrating to ground.

9.9.55 It is proposed to contain the fire water runoff within a bunded lagoon structure where it can be held and tested before either being released into the SuDS system or taken off site by a tanker for treatment elsewhere. The lagoon will then be cleaned of all contaminants.

9.9.56 The lagoon will be controlled by a penstock valve that can be automatically closed during a fire, i.e., under normal circumstances rainfall will be allowed to drain through the lagoon into the SuDS system.

the BESS enclosure is a walk-in design, then a fire suppression system must be installed. Fire suppression system performance as best practice should be benchmarked against free burn testing. An independent Fire Protection Engineer specialising in BESS should review all UL 9540A test results and any additional fire and explosion test data which has been provided and validate the suppression system design.

9.10.67 In the instance there is a small fire within the BESS area which cannot be directly contained, there may be potential for contaminated firewater runoff into the SuDS system. To mitigate this, the Outline Drainage Strategy (ES Volume 3: Appendix 9-C [EN010131/APP/3.3]) indicates that firewater would be contained in a bunded lagoon structure with a penstock. The penstock will then enable potentially contaminated suppression waters to be isolated and extracted in order to be suitably tested and disposed of offsite without entering the surrounding hydrological network. Following a fire event, the drainage network will require an assessment to confirm the absence of any contaminants prior to the penstock being released. The Scheme operator will be responsible for conducting a controlled flushing of the drainage network prior to the release of the penstock. This approach to mitigation is secured within the Outline Drainage Strategy (ES Volume 3: Appendix 9-C [EN010131/APP/3.3]).

9.10.68 Should there be any other spillages on the BESS Compound such as battery leakage or spillage of fuel from the transformers then any contaminated runoff would be managed and intercepted by the penstock system, as with the firewater outlined above. **This is not So!!**

9.10.69 During operation, the Solar and Energy Storage Park would operate using best practice and comply with environmental legislation through the application of an Outline Landscape and Ecological Management Plan (OLEMP) [EN010131/APP/7.10], including appropriate maintenance of SuDS and other drainage infrastructure.

9.10.92 There are no residual significant effects (this suggests that some effects have been identified but not revealed in the submission) on the water environment expected following the implementation of mitigation.

9.10.93 non-significant effects are listed in ES Volume 3: Appendix 9-E [EN010131/APP/3.3].

9.10.94 As there are no significant effects following the implementation of the embedded mitigation measures. On this basis, no additional mitigation measures are identified. See above!!

The above statements leave unanswered questions:

Will the penstock valve be able to automatically detect contaminated fire runoff water and rainwater and then divert either to an appropriate channel?

How will the runoff water be contained, tested /treated and discharged to the SuDS?

If the lagoon is already full of rainwater how will the contaminated fire water, be disposed of?

If a fire occurs in a battery, it is likely that there will be a closure of the solar farm and will remain closed until such time as the contaminated water has been filtered and disposed of to ensure that a further fire can be satisfactorily and safely dealt with?

In the event of a fire and shut down of the solar farm will the developer be confident of continuing and is there a risk of failure and closure of the solar farm permanently?

It will be useful at this stage to consider the comments from Professor Sir David Melville CBE a global leading expert, on the document: Grid Scale BESS - Guidance for FRS which gives useful information requirements in terms of system

design and construction (pp3,4) as well as Detection and Monitoring (pp4,5)

On Suppression Systems (pp5,6) it provides clarity that copious levels of water cooling is the only means of limiting the spread of fire and rules out alternative approaches.

A recommended standard minimum spacing of 6m between units (containers) is an improvement on much current practice but is lower than the flames recorded in the Arizona fire of over 16m.

On the issue of Water Supplies the guidance is substantially inadequate. The suggestion of a watercooling system capable of delivering 'no less than 1,900 litres per minute for at least two hours' would deliver a total of only 228,000 litres. There is limited data on the measurement of water volumes deployed in previous BESS fires; the best comparison being the report quoted on the July 2021 Victoria Big Battery (VBB) fire where 900,000 litres were required over six hours to extinguish it. The fire was in two units, spreading from the first to the second after 2 hours and involved an estimated BESS size of 4.25 MWh.

Moreover, the volume of water required will be proportional to the size of the BESS on fire, so it is not possible or helpful to suggest a single figure for total water requirement as stated in the NFCC Guidance.

It is suggested that the total water requirement should be expressed as X litres per MWh of energy storage. From the VBB experience, $X = 900,000 / 4.25 = 211,765$ litres per MWh.

It is more difficult to specify the rate of delivery required since larger fires will certainly take much longer to extinguish.

It is suggested that a rounded figure for guidance might be:

'at least 200,000 litres per MWh of storage delivered over up to 12 hours. Very large BESS fires will require longer to extinguish and will need longer-term surveillance to monitor any signs of reignition'.

Finally, the fact that water run-off is highlighted on p6, but there should be greater emphasis on the toxicity of very large volumes of fire run-off water and the need for its storage and treatment., linking also to the Environmental Impacts section.

Using the recommended figure above, a 20 MWh BESS fire such as that at Basing Fen would require the delivery and storage of 4 million litres of water whilst a complete fire at the proposed 700MWh BESS at Cleve Hill, Kent would involve 140 million litres of cooling water.

Written Representation (WR6) on Risk to Human Life, Animal Life, and the Food Supply Chain

6. Risks to Human Life, Animal Life, and the Food Supply Chain

In this age of Net Zero, any solar scheme over 50 MW counts as a National Significant Infrastructure Project, or NSIP. This means the final decision is made, not by local people, but those in Whitehall. The worries of residents, who don't fancy living in an energy factory, count for little. The same goes for farmers who prefer the idea of potatoes under their land to solar panels above it.

Such cases matter since they are not isolated events. Sunnica is by no means the only organisation seeking to get the green light for plonking its profitable panels on to farmland.

Site selection

The Applicant's site selection process is set out **Chapter 3: Alternatives and Design Evolution [APP-012/3.1]**. This consisted of a four-stage process: Stage 1 consisted of determining the search area for a site to accommodate the Scheme defined by the available grid connection at the NETS Cottam substation. Stage 2 consisted of a feasibility assessment within the search area to identify the presence/absence of key environmental and social constraints. At Stage 3, areas of land that were identified as potentially suitable to accommodate a proposed solar development following Stage 2 were further refined through analysis of topography, size and pattern of potential sites, access, suitable sites of brownfield land and a preference for a small number of willing landowners. At Stage 4, the Gate Burton site (the Order Limits) was identified as being suitable for solar PV development as it met all criteria and avoided those areas likely to lead to a policy requirement to consider whether alternative sites would be preferable. However, at all stages of design development and the Environmental Impact Assessment process alternatives have been considered to maximise benefits of the Scheme and minimise adverse environmental and social impacts.

There are similar schemes at Longfield near Chelmsford, and another at Mallard Pass near Stamford in Lincolnshire. Both schemes are opposed by locals. So why the push to put panels on farmland? To the argument that brownfield sites would work just as well, the response put forward is usually the same: that land is too dear, and the scheme might struggle to break even unless developers are empowered forcibly to buy up virgin fields at agricultural prices.

All this should worry anyone, wherever they live. For one thing, food security is a problem in an increasingly overcrowded country. Just how are we going to be able to satisfy the population expansion from 67,508,936 in 2022 to projected 70.49 million in 2030 and increase further to 74.08 million in 2050. These exclude the influx of migrants!

The decommissioned Cottam Power Station, a recognised industrial site has not been considered as a suitable site for locating the BESS, which begs the question, Why Not?

The report on Cleve Hill solar farm report says that based on hydrogen fluoride being released from a fire for an hour concentration in the air 4.5km away could be 2,444 times higher than the derived domestic exposure limits and even 10km away, data modelling predicted readings 55 times higher.

The highly toxic potential emissions will significantly affect not just human life but also wildlife and farm animals and crops in the food supply chain. These effects have not been fully reported on by the developer.

The developer has a duty under Advice Notice Seventeen, requiring applicant to take account of the cumulative effects

Food security

It is agreed that some agricultural land will be taken out of arable production temporarily for 60 years. Land affected permanently by the development (such as construction of the substation) will be limited to small areas. Impacts to BMV have been avoided by siting permanent infrastructure outside of areas of good quality agricultural land. **Chapter 12: Socio-economics and Land Use [APP-021/3.1]** includes a breakdown of permanent and temporary losses for the different types of land use within the proposed development (including the Grid Connection Corridor), broken down by ALC area (ha) and percentage.

A large proportion of the land is farmed for crops used for industrial processes, alcohol production, bioethanol, fish pellets, fish food and biofuel and is not actually producing food for human consumption.

The site itself represents approximately 0.1% of all the farmland in Lincolnshire but is capable of powering approximately 155,000 homes which is around one half of all the homes in Lincolnshire¹.

The Government's position is that **"the UK has a large and highly resilient food supply chain. Our high degree of food security is built upon supply from diverse sources: strong domestic production as well as imports through stable trade routes"** (Defra Press Release 6 December 2022. The Government Food Strategy (2022) sets out objectives to "broadly maintain the current level of food we produce domestically". Overall, the UK produces about 60% by value of the food we eat, but that rises to about 74% of the food we can grow or rear in the UK, as shown below (graph taken from the UK Food Security Report 2021).

¹ ONS (2011) Census 2011: Households (Tenure)

of other aspects which may influence the Examiner, and this something which is lacking. Again, this appears to be missing in the developer's submission.

There also appears to be little or no recognition of the impact of the project on Net Zero and the very nature of the project this should have been highlighted by the developer.

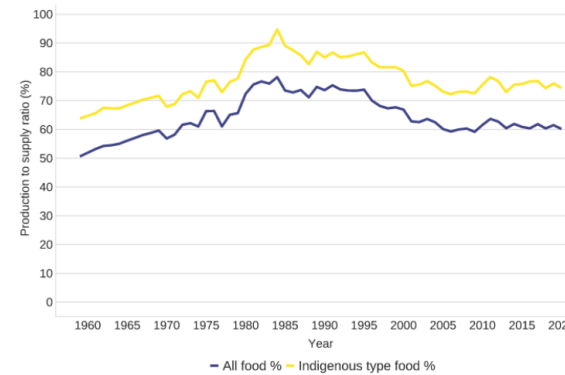
In the event of a fire and shut down of the solar farm will the developer be confident of continuing? and is there a risk of failure and closure of the solar farm permanently?

The Nationally Significant Infrastructure Project procedures leave LPA's and their communities with little or no meaningful say in the decision-making process. It also leaves LPA's with the extremely difficult task of controlling and being responsible for almost all tasks, should a project be approved.

This is a total imbalance in planning and control of events, with LPA's carrying a heavy burden of control especially in the significant Solar Farms currently being proposed.

To ease the heavy burden of control on West Lindsey District Council and Lincolnshire County Council, we would suggest that in the event of a Solar Project be approved, and the project being subsequently decommissioned or failing for any reason, the incumbent landowners be made responsible for returning the land to its previous state.

Will the Examiner and the Secretary of State agree that the approval of this Solar Project be subject to a condition that the incumbent landowner be responsible for returning the land used in a Solar Project to its original state?



The reasons for the graph are many and varied. The UK remains largely self-sufficient in terms of cereals, meat, eggs, milk and many of the fruits and vegetables suited to our climate.

Cottam Power Station as an alternative site

The Cottam Power Station site is located partially in Flood Zone 2 and surrounded by Flood Zone 3 (see ES **Figure 9.2 [AS-003/3.2]**). The only areas that are not within the Flood Zone at the power station are the National Grid Substation, which is remaining in use, and two small areas between the cooling towers and the River Trent. The Gate Burton site is almost wholly in Flood Zone 1 so is sequentially preferred from a flood risk perspective.

Cottam Power Station is identified in the draft Bassetlaw Local Plan 2020- 2038 as a Priority Regeneration Area and as a broad location for mixed use regeneration under Policy ST6. The PRA is shown alongside the Order limits in ES **Figure 3.6 [APP-040/3.2]**. Policy ST6 states that the site will be safeguarded from development which would jeopardise the comprehensive remediation, reclamation and redevelopment of the whole site. Therefore, whilst the impact of the cable connection and access would have minimal impact on development of the PRA, placing large scale solar on the site would.

The whole PRA comprises 348 hectares of land and this includes areas of agricultural land and green/ blue infrastructure, so is not solely brownfield land.

This will assist WLDC overcome the burden and any possible financial risk should the project fail for any reason during its lifetime.

As shown in ES **Figure 3.6 [APP-040/3.2]** a significant proportion of the site between the cooling towers and the River Trent is part of the Cottam Wetlands Local Wildlife Site and Trent Bank. Part of the southern boundary of the PRA forms the setting of the Fleet Plantation Scheduled Monument.

The draft Bassetlaw Local Plan (paragraph 5.4.14) also states that *'The Site is being promoted by the land owner but has a legacy of contamination due to its historical uses associated with a coal fired power station and associated infrastructure. Although the Council supports the site's remediation and positive re-use, there is still a lot of work to do prior to the full remediation of the site.'*

Finally, some of the PRA remains in use, particularly the National Grid Substation.

Overall, the PRA associated with Cottam Power Station is significantly smaller than the Gate Burton site, with the developable area reduced further once constrained areas like the LWS and retained substation are removed. The flood risk associated with the site would also mean it is not preferred over the Gate Burton Site and the contamination issues could affect feasibility, speed of delivery and cost. Overall, it cannot provide a site that would generate the same amount of electricity and it is not a preferred site in environment or planning terms.

Highly toxic potential emissions

The Applicant disagrees that there is a significant and unacceptable dangers to health and indeed human life; as well as to farm animals and agricultural crops in the food chain. Health and Safety is a core principle for the Applicant whose group company is both an asset owner and operator. The Applicant has brought in Dr Paul Christensen from Newcastle University to advise on the latest worldwide safety protocols associated with Lithium-Ion technology, along with the Lincolnshire Fire and Rescue Service to advise on design and a safety management plan and to provide the emergency services with relevant information if requested. This will be refreshed prior to construction to ensure the highest safety standards are incorporated in the design and ensure minimal impact on the environment. The Applicant has had a virtual meeting with Lincolnshire's Fire and Rescue team and this engagement will continue throughout the development, construction and operation of the Scheme. The

Applicant has embedded mitigation within the Scheme design and has included an **Outline Battery Fire Safety Management Plan** in its DCO application [APP-222/7.1]. This outline plan sets out how the Scheme proposes to mitigate and manage the potential fire risk posed by the BESS.

Cumulative effects

The Applicant has had regard to developments in the surrounding area in its cumulative assessment, which has been undertaken in each of the technical chapters of the ES and summarised in **Chapter 16: Cumulative Effects and Interactions of the ES [APP-025/3.1]**.

Net Zero

The UK Government's Powering Up Britain Strategy, Powering Up Britain: Energy Security Plan and Powering Up Britain: Net Zero Growth Plan sets out how the UK will achieve energy security, promote green growth and meet its net zero targets.

Powering Up Britain was published in March 2023 to presents the most up to date information on the Government's energy strategy. It recognises the huge potential solar generation can have in decarbonisation and emphasises the need to maximise the deployment of ground-mounted solar. This strategy (p20) states the UK government '*seeks large scale solar deployment across the UK, looking for development mainly on brownfield, industrial and low/medium grade agricultural land.*' The document reiterates the target set out in the British Energy Security Strategy (2022) to increase solar fivefold by 2035, up to 70 GW, providing further certainty for support for solar. Powering up Britain emphasises that ground mounted solar is one of the cheapest forms of electricity generation and is readily deployable at scale.

Decommissioning

The Applicant has committed to decommission the Scheme after a period of 60 years from final commissioning of the authorised development and this is secured by Requirement 19 of the draft DCO. The Requirement to decommission the Scheme requires a decommissioning and environmental management plan (DEMP) to be submitted and approved by the relevant

planning authorities in advance of decommissioning commencing. That plan must be in accordance with the **Framework DEMP** submitted with the application **[APP-226/7.3]**.

If the undertaker does not comply with the terms of the DCO then there are enforcement provisions included in the Planning Act 2008 which would enable the relevant planning authorities to secure compliance.

Written Representation (WR7) on COMAH 7. COMAH

The Health and Safety Executive (HSE) do not place BESS under the auspices of the Control of Major Accident Hazards Regulations (COMAH) 2015. Instead, they define them as “articles” which means that safety issues are essentially a matter for the local Fire Service.

There is no requirement for Hazardous Substances Consent (HSC) from the Local Planning Authority (LPA)

In the past and for the previous BESS application at Southfield Farm, Wiltshire County Council planning have concluded that the application does not need an Environment Impact Assessment (EIA)

a paper published in March 2022 by Professors Melville, and Doctor Fordham argues that in any BESS at 50MWh or above, the level of toxic chemicals is such that they do fall within COMAH. They show that any BESS at 25MWh or above using Lithium-ion (LFP) technology is calculated as needing a Hazardous Substances Consent (HSC) from the local Planning Authority before installing the plant and that it would come under COMAH.

“The central conclusion of Table 13 is that a 50 MWh BESS is almost certain to require a HSC assessment, regardless of

Hazardous Substances Consent

A separate technical note for Hazardous Substance Consent has been sent to Lincolnshire County Council to explain why this consent is not required.

Danger to human health and the environment

The Applicant disagrees that there is a significant and unacceptable dangers to health and indeed human life; as well as to farm animals and agricultural crops in the food chain. Health and Safety is a core principle for the Applicant whose group company is both an asset owner and operator. The Applicant has brought in Dr Paul Christensen from Newcastle University to advise on the latest worldwide safety protocols associated with Lithium-Ion technology, along with the Lincolnshire Fire and Rescue Service to advise on design and a safety management plan and to provide the emergency services with relevant information if requested. This will be refreshed prior to construction to ensure the highest safety standards are incorporated in the design and ensure minimal impact on the environment. The Applicant has had a virtual meeting with Lincolnshire’s Fire and Rescue team and this engagement will continue throughout the development, construction and operation of the Scheme. The Applicant has embedded mitigation within the Scheme design and has included an **Outline Battery Fire Safety Management Plan** in its DCO application **[APP-222/7.1]**. This outline plan sets out how the Scheme proposes to mitigate and manage the potential fire risk posed by the BESS.

Thresholds for COMAH

The COMAH Regulations relate to the storage of ‘dangerous substances’ and the requirement to ensure that all necessary measures are taken to prevent major accidents involving dangerous substances, and to limit the consequences to people and the environment of any major accidents which do occur. The applicability of the COMAH Regulations is dependent on the substances being

electrode type or the assumptions made regarding CO. LFP cells are widely promoted as “safer” than other chemistries because of their “slower” behaviour in thermal runaway, but generate larger quantities of toxic fluorides. At 25 MWh, they are likely to require HSC on the basis of HF generation alone, irrespective of assumptions regarding CO. NMC or other mixed oxide cathodes may generate smaller quantities of toxic fluorides but including CO may still trigger the Aggregation Rule on Health Hazards and are almost certain to trigger the Aggregation Rule on Physical Hazards, derived from anoxic conditions, similarly requiring no assumptions regarding completeness of combustion.”

The proposed BESS at Gate Burton Energy Park is 500Mwh Lithium-ion (LFP) which would, this paper argues, require Hazardous Substance Consent (HSC) from the Local Planning Authority and fall under COMAH regulations:

The known dangers they present to both human health and the environment must be assessed. To date the chemicals inside the 500MWh BESS, numbering about 2,000,000 battery cells have not been included in any calculation for hazardous substances release under COMAH and therefore the subsequent dangers to human health and environmental damage have not been assessed. Calculations show that any such lithium-ion based BESS over 17.5MWh would be brought into the scope of COMAH and separately require Hazardous Substances Consent under Planning.

To support this argument on the 7th September 2022 a Bill was presented in Parliament that would define a BESS as a “Hazardous” industrial site that would require them to come under the corresponding existing safety legislation. This would include the Planning Hazardous Substances Regulations 2015 and the Control of Major Accidents Hazards Regulations 2015 and involvement of the

stored at Gate Burton / the BESS and in what quantities. It is unclear at this point whether the COMAH Regulations will apply to the design and operation of the BESS. Should it become clear that the COMAH Regulations do apply, then they will be complied with either before the commencement of construction or operation of the BESS, as is required. For example, if the COMAH Regulations do apply, then a notification of the dangerous substances stored at the site will be made to the competent authority (jointly the HSE and Environment Agency in this case) before construction commences, and a major accident prevention policy will be prepared before construction or site operations commence.

Environment Agency, the Health and Safety Executive and the Fire and Rescue Services.

The Bill is awaiting its second reading but "The evidence shows that the current regulations for lithium-ion battery storage facilities do not reflect the true risk."

"The Bill would ensure that industrial lithium-ion battery storage facilities are correctly categorised as hazardous,"

"Battery storage facilities must be seen correctly for what they are: highly complex, with the potential to create dangerous events and hazardous substances. The good news is that we do not need new regulations; we simply need to better use the regulations we have. We already have robust legislation, the Planning (Hazardous Substances) Regulations 2015 and the Control of Major Accident Hazards Regulations 2015. The Bill would correctly apply those regulations to battery storage sites."

The BESS in this project would reach the thresholds for COMAH and, to date, no direction has been issued that any chemicals inside the batteries of a BESS will be assessed going forward. The Examiner correctly apply the regulations as identified above in respect of COMAH the significant considerations his report?

Written Representation (WR8) Summary

8. Summary

The UK power usage is 300TWh about per annum and the amount of energy produced by a large scale 500MW solar farm contributes only about 0.15% to this requirement and not as often stated "...large amounts of green power..."

The high profile of the developer does not rest easily when looking at the submission of the project which is littered with

Lithium ion batteries

Health and Safety is a core principle for the Applicant whose group company is both an asset owner and operator.

Lithium batteries have been used for decades in our society with very low instances of fires relative to use. But it is recognised that there is a risk to the technology due to potential damage caused to the equipment through transportation and installation.

missing and essential and vital information on which to make a comment or judgement.

We are not able to satisfactorily comment on the use of Lithium Batteries and the ExA is requested to set aside and not make any decision, until the specifications are provided, and the opportunity to make further comments.

From the manufacturer to the dealer to the consumer, back to the manufacturer, or to the remanufacturer / recycler, Lithium-ion batteries have a long journey to make in their lifetime.

Yet, with many people's safety at stake, on every move and stop they need to be handled with the utmost care. That's why lithium-ion batteries come with many regulations the Inspector is asked to consider.

Will the Planning Inspector now decide against the proposals on the grounds of the significant and unacceptable dangers to health and indeed life; as well as to farm animals and agricultural crops in the food chain?

A BESS carries a risk of "thermal runaway", more commonly known as "battery fire", where overheating in a single cell can spread to neighbours within a container leading to further energy release. These are not strictly fires in that no oxygen is required, which of course means that conventional methods of fire control are unlikely to succeed.

A BESS fire can result in the release of toxic and inflammable gases and chemicals:

The activation of a suppression system would have had little or no effect on the resultant fire/explosion in a BESS fire.

Danger to human health and the environment

The Applicant disagrees that there is a significant and unacceptable dangers to health and indeed human life; as well as to farm animals and agricultural crops in the food chain. Health and Safety is a core principle for the Applicant whose group company is both an asset owner and operator. The Applicant has brought in Dr Paul Christensen from Newcastle University to advise on the latest worldwide safety protocols associated with Lithium-Ion technology, along with the Lincolnshire Fire and Rescue Service to advise on design and a safety management plan and to provide the emergency services with relevant information if requested. This will be refreshed prior to construction to ensure the highest safety standards are incorporated in the design and ensure minimal impact on the environment. The Applicant has had a virtual meeting with Lincolnshire's Fire and Rescue team and this engagement will continue throughout the development, construction and operation of the Scheme. The Applicant has embedded mitigation within the Scheme design and has included an **Outline Battery Fire Safety Management Plan** in its DCO application [APP-222/7.1]. This outline plan sets out how the Scheme proposes to mitigate and manage the potential fire risk posed by the BESS.

Thermal Runaways

The Applicant has brought in Dr Paul Christensen from Newcastle University to advise on the latest worldwide safety protocols associated with Lithium-Ion technology, along with the Lincolnshire Fire and Rescue Service to advise on design and a safety management plan and to provide the emergency services with relevant information if requested. This will be refreshed prior to construction to ensure the highest safety standards are incorporated in the design and ensure minimal impact on the environment. The Applicant has had a virtual meeting with Lincolnshire's Fire and Rescue team and this engagement will continue throughout the development, construction and operation of the Scheme.

The detailed design phase of individual BESS sites will consider the lifecycle of the battery system from installation to decommissioning. At the detailed design stage, risk assessment tools will be utilised together with detailed consequence modelling to provide a comprehensive site operations and emergency response safety audit.

We respectfully ask that the risks associated with the deployment of large-scale BESS, must be addressed in order to avoid the issues clearly highlighted by the Deputy Fire Safety Commissioner of the London Fire Brigade when he said:

“If we know some things could fail catastrophically or it could have those effects,” he said, “it’s going to be a difficult day if one of us is standing there in court saying we knew about it but we didn’t do anything.”

Some of the key issues of BESS incidents involve management of toxic and flammable gases and containment of contaminated fire water run off – none of which can be contained within a building or security fence.

Thermal runaway cannot be controlled like a regular (air-fuel) fire. A significant volume of water will be required to cool a BESS fire. It will be contaminated with highly corrosive hydrofluoric acid and other hazardous chemicals.

It is important to recognise that the rivers Trent and Till run through the proposed site raising significant questions about the amount of water required and contamination control that a critical event of a fire would result in environmental damage from toxic run-off.

In addition, the field adjacent to the site is an area of flooding which will potentially further increases toxic run-off risk and critical event control.

Will the penstock valve be able to automatically detect contaminated fire runoff water and rainwater and then divert either to an appropriate channel?

The battery system mitigation measures adopted in a final Battery Fire Safety Management Plan, will reflect the latest BESS safety codes and standards applicable at that stage. Mitigation measures will be discussed and coordinated with LFRS.

A Failure Modes and Effects Analysis (FMEA) of the BESS (BS EN IEC 60812) will be conducted to lay the foundation for predictive maintenance requirements and compliment the fault indicator capabilities of the BMS data analytics system.

Comprehensive Hazard Mitigation Analysis (HMA) will be conducted by a BESS specialist independent Fire Protection Engineer following NFPA 855 (2023) guidelines and recommendations.

Additional risk assessments likely to be conducted at the detailed design stage are Fire Risk Analysis (FRA), Explosion Risk Analysis (ERA), Hazard and Operability Analysis (HAZOP). Comprehensive BESS 3rd Party risk analysis is sometimes automatically provided by Tier one BESS manufacturers and / or BESS integrators.

If the BESS system supplied differs from the specification considered for risk assessments and consequence modelling, then a full safety audit must be repeated for the new BESS system specification. These studies must be completed and signed off before construction commences.

On an annual basis an independent fire risk assessment is carried out. Insulation monitoring and arc fault monitoring will detect low grade faults before they are close to a fire risk. There is a fusing and protection at string level, string combiner box level, inverter level, switchgear level and substation level that will cascade in depending on the original location of the fault causing the fire. Equipment is built to contain a fire, especially the inverters and the substation. If a fire was to occur for example at an inverter, the fire will be contained to this specific inverter. The site boundaries and inter-row spaces provide a natural fire gap for containment of fire. There is a separation between combustible material and non-combustible material. Fire retardant cables are used. Regular testing and groundskeeping also help to minimise the likelihood of a fire.

How will the runoff water be contained, tested /treated and discharged to the SuDS?

If the lagoon is already full of rainwater how will the contaminated fire water, be disposed of?

Final Comment: The fundamental failure mode of Li-ion batteries presenting major hazard is thermal runaway. This paper is far from the first to identify the risk which is now well-known.

However, the BESS industry has still not agreed or implemented adequate engineering standards to address basic Prevention measures to pre-empt thermal runaway accidents.

The developer has not proved their submission to be sound, and contains significant weakness and a lack of depth in their submission should not be approved.

The Applicant has embedded mitigation within the Scheme design and has included an **Outline Battery Fire Safety Management Plan** in its DCO application [APP-222/7.1]. This outline plan sets out how the Scheme proposes to mitigate and manage the potential fire risk posed by the BESS.

Water Contamination

An **Outline Drainage Strategy** is provided in **Appendix 9-C [APP-139 to 141/3.3]**. Surface water runoff across the Solar and Energy Storage Park will be discharged to ground through the use of sustainable drainage systems (SuDS) to provide attenuation (both in terms of storage capacity and water quality treatment).

Emergency Response Plan (ERP) document stands separate from the Battery Safety Management Plan (BSMP). The ERP will be in place prior to construction, developed through construction and set out as fixed for operation. It will be written in conjunction with Lincolnshire Fire and Rescue Service and will include the battery OEMs advices/manuals, best practice guidance (NFPA), practical limitations of the site and with best practice around the equipment installed and layout, details of contaminants and how these need to be managed. The commitment to provide an ERP is secured through the **Outline Battery Safety Management Plan [APP-222/7.1]**.

The Applicant has embedded mitigation within the Scheme design and has included an **Outline Battery Fire Safety Management Plan** in its DCO application [APP-222/7.1]. This outline plan sets out how the Scheme proposes to mitigate and manage the potential fire risk posed by the BESS.