Proposed Solar PV Development

Byers Gill Solar
EN010139

Comments on Relevant Representations

Planning Act 2008

APFP Regulation 5(2)(q)

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

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Table of Contents

Table of Tables

1. Introduction

1.1. Purpose of this document

1.1.1. This document has been prepared by RWE (the Applicant) for submission to the Examining Authority (ExA) under Deadline 1 of the Examination of the Byers Gill Solar Development Consent Order (DCO) application.

1.1.2. This document provides the Applicant's comments on Relevant Representations submitted to the ExA by Interested Parties, Affected Persons and Statutory Parties.

1.1.3. In total 553 Relevant Representations were submitted to the ExA by the deadline of 20 May 2024. One additional submission [AS-009] from National Highways was accepted at the ExA's discretion outside of the deadline and is also commented upon in this document.

1.2. Approach to this document

1.2.1. The Applicant has reviewed all the Relevant Representations submitted to the ExA. Responses are provided in this document which set out the position of the Applicant on points that have been raised and to provide clarification as necessary.

1.2.2. Due to the volume of representations received, particularly from the general public, the Applicant has identified and categorised general themes of matters that have been commonly raised. In Chapter 2 of this document, the Applicant summarises these themes and provides a collective comment on the matters raised. This approach has been taken to avoid the repetition that would occur through providing a detailed response to each individual Relevant Representation.

1.2.3. It should also be noted that many of the Relevant Representations raise matters that are the same or similar to those raised in response to statutory consultation, and to which a response has been provided through the Consultation Report [APP-017] submitted with the DCO application.

1.2.4. Notwithstanding the approach outlined above, it is recognised by the Applicant that some matters raised are more specific in nature. Where this is the case, the Applicant has sought to identify and respond to these in Chapter 2 of this document under the broad themes, with reference to the specific Relevant Representation being considered.

1.2.5. In recognition of the approach taken, where applicable, Interested Parties can search within this document using their allocated Representation Number (as provided within the ExA's Examination Library) to find a response to their Representation.

1.2.6. The Applicant also recognises that there are specific matters raised by Statutory Parties in relation to their function, including those with which the Applicant is already

engaged in discussions, such as through a Principal Area of Disagreement Statement (PADS). A Statutory Party are those bodies defined in Schedule 1 of The Infrastructure Planning (Interested Parties and Miscellaneous Prescribed Provisions) Regulations 2015. As such, Chapter 3 of this document provides an individual response to Relevant Representations made by Statutory Parties. This focuses on providing an update to the ExA on the respective positions between the Applicant and the Statutory Party, referring to Statements of Common Ground (SoCGs) as requested by the ExA, and other documents, where relevant.

1.2.7. The Applicant wishes to highlight to the ExA that in some cases, Relevant Representations have been made which identify a broad matter but defer detail to a later date in the Examination, for example via forthcoming Written Representations or the Local Impact Report (LIR). In such cases, the Applicant is unable to provide a detailed comment at this stage, however, is seeking to engage with the Party in advance of further submissions to progress discussions.

1.2.8. Additionally, it is recognised by the Applicant that some of the matters and themes raised, and subsequently responded to within this document, directly relate to the ExA's Initial Assessment of Principal Issues in Annex C of its Rule 6 Letter [PD-003]. The Applicant hopes that this document therefore provides a response and further clarity of its position in relation to these Issues.

1.3. Structure of this document

1.3.1. The structure of this document is as follows:

- Chapter 2: Response to common matters raised in Relevant Representations
- Chapter 3: Response to Relevant Representations made by Statutory Parties

2. Response to common themes raised in Relevant Representations

2.1. Overview

2.1.1. This chapter sets out the Applicant's response to common themes raised in the Relevant Representations.

2.1.2. For each common theme, the sections below provide a summary of the theme raised and the comments received, and then the Applicant's position on the matter. Where a specific matter has also been raised under that theme, it is separately summarised and responded to.

2.1.3. The following common themes are considered and addressed below:

- Adequacy of consultation
- Agricultural land and soils
- Alternative options to the Proposed Development
- Biodiversity
- Cable routes
- Climate change
- Concerns regarding Battery Energy Storage Systems (BESS)
- Construction
- Cultural heritage
- Cumulative effects
- Decommissioning
- Glint and glare
- Human health
- Hydrology
- Impact on properties and businesses
- Landscape and visual impacts
- Lighting
- Noise
- Operation and maintenance
- Principle of development
- Scale of the Proposed Development
- Socioeconomic and community impacts
- Traffic and transport

2.2. Adequacy of consultation

Summary of matters raised in Relevant Representations

2.2.1. Some Relevant Representations were critical of the consultation process, stating that there had been limited communication and insufficient engagement from the Applicant; that the process had been "underhand"; and that queries raised in the consultation had not been responded to adequately.

2.2.2. The documentation provided as part of the consultation was criticised by some Representations, stating that the photos used were misleading; that not enough physical copies of the Consultation Booklet had been provided; and that they were not provided in convenient locations for residents. The cost of requesting hard copies of the Preliminary Environmental Information Report (PEIR) documentation was also criticised. Some Relevant Representations noted that the incorrect address for one of the engagement events had been given, and that representatives of the Applicant had left early. There was also criticism of the consultation and Relevant Representation process being mostly online.

2.2.3. Some Relevant Representations stated that they had been told they would receive an individual response to their consultation submission, but they had not received this. Some Relevant Representations disagreed with statements in the application documents that the Proposed Development has been designed with input from the community. Some also stated that design changes were primarily as a result of a landowner removing their land from the land acquisition, rather than community consultation.

RWE response

2.2.4. The Applicant prepared a Consultation Report [APP-017] and appendices [APP-018-021] as part of the DCO application, which provides a full account of the statutory and non-statutory consultation and engagement undertaken during the pre-application period. It demonstrates that all statutory requirements were fulfilled with regard to the statutory consultation period, and meets the requirement of Section 49 of the Planning Act 2008 (the Act) to have regard to the relevant responses received in respect of the statutory consultation. Furthermore, Chapters 2, 3 and 8 of the Consultation Report [APP-017] evidence that the Applicant exceeded its statutory requirements in undertaking additional engagement during the pre-application period.

2.2.5. The approach to statutory consultation was agreed with the host local authorities prior to its commencement. As part of the preparation for the consultation, the Applicant engaged with Darlington Borough Council (DBC), Stockton-on-Tees Borough Council (SBC) and Durham County Council (DCC), including on the location of events, the information provided and the ability to make the documents accessible as much as practicable. This was done via meetings, but also through the development of a Statement of Community Consultation (SoCC). The SoCC was prepared in consultation with the three local authorities, and the Applicant sought to carry out the

consultation in accordance with that document; this is evidenced in Appendix 4.7 of the Consultation Report [APP-017].

2.2.6. Regarding the availability of paper documents; these were placed at Norton Library, due to renovations at Darlington Library, this was the only available public library in the vicinity of the Proposed Development. Regulation 4 (2) (g) of the Infrastructure Planning (Applications Prescribed Forms and Procedure) states that a notice publicising a statutory must state whether a charge would be made for copies of documents; it is common practice to state a charge for the full PEIR. If requests for specific documents were received, they were provided.

2.2.7. At point of DCO application, local authority consultees were requested by the Planning Inspectorate (PINS) to make representations regarding the adequacy of consultation. All local authorities that responded confirmed that the Applicant complied with its legislative requirements in carrying out the consultation. The DCO application was accepted for Examination on 8 March 2024 and was therefore found to be compliant with statutory requirements for pre-application consultation.

2.2.8. Whilst the Applicant acknowledges the points raised through Relevant Representations regarding individuals' opinions and experience of the consultation process, the Applicant does not agree that there was insufficient consultation prior to DCO application. As outlined above, the consultation was found to be in statutory compliance with the Act and was sufficient to enable the application to progress to the Examination stage, where Interested Parties have further opportunity to submit representations and participate in the application process.

2.3. Agricultural land and soils

Summary of matters raised in Relevant Representations

Use of agricultural land

2.3.1. Some Relevant Representations objected to the loss of agricultural land, citing concerns including impact on food security; the possibility of exacerbating high food prices; the potential of a negative impact on nearby farms; the perceived inefficiency of using agricultural land for solar power generation as opposed to food production; and the need to retain agricultural land to absorb carbon emissions and support diverse ecology. Some Representations stated that landowners who do not wish to farm their land should sell it to other farms rather than allow solar power development, and one Representation suggested that the loss of agricultural land should be offset by the Applicant. There were also concerns regarding the validity of the agricultural land classification of land within the Order Limits, with many Relevant Representations stating that the land is productively farmed.

Soils

2.3.2. Some Representations raised concern regarding the treatment of soil during construction, including the removal of top soil, the potential for soil compaction, and the storage of soil. Representations also suggested that the cleaning materials used on the Proposed Development would contaminate the soil and nearby watercourses.

RWE response

Use of agricultural land

2.3.3. ES Appendix 9.1 Agricultural Land Classifications and Soil Resources [APP-150] provides a summary of the Agricultural Land Classification for each parcel of land which is to be used by the Proposed Development. It confirms that only 6.1% of the total site area includes land considered Best and Most Versatile (BMV), which is Grade 3a and above. The Applicant considers that it was not feasible to avoid agricultural land altogether and that the overall low proportion of BMV land within the Order Limits is justified within the context of the overall benefits presented by the Proposed Development, and its clearly established national need, as set out in Paragraph 5.4.9 of the Planning Statement [APP-163].

2.3.4. As set out in ES Appendix 9.1 [APP-150], the assessment of agricultural land quality was carried out in accordance with relevant Government guidelines and criteria. This is reflected in the Relevant Representation from Natural England [RR-373], with whom the Applicant has engaged during the pre-application period regarding its survey and assessment of the Proposed Development in relation to agricultural land. Natural England has confirmed in its Relevant Representation [RR-373, Key Issue NE6] that it is satisfied that the Proposed Development is '*unlikely to lead to significant permanent loss of BMV agricultural land, as a resource for future generations.*' The assessment carried out by the Applicant is therefore considered technically valid and appropriate.

2.3.5. As set out in the Statement of Reasons [APP-014], the Applicant has secured land for the panel areas via negotiation and voluntary agreement with relevant landowners. Solar farms provide valuable income for farmers, they can still be used for grazing, and can support UK farmers to continue food production on other parts of their land. The independent National Food Strategy Review shows that solar farms do not in any way present a risk to the UK's food security. Indeed, the reverse is true: the solar industry is working closely with Britain's farmers to reduce their energy costs and improve the sustainability of their operations. Further, where a solar farm is installed on land which has been intensively farmed, it enables the ground underneath to recover, while providing income for the farming business.

2.3.6. This assertion is further supported by the Secretary of State for Energy Security and Net Zero's statement in the House of Commons on 18 July 2024 (Appendix A.1), which states that:

"Credible external estimates suggest that ground-mounted solar used just 0.1% of our land in 2022. The biggest threat to nature and food security and to our rural communities is not solar panels or onshore wind; it is the climate crisis, which threatens our best farmland, food production and the livelihoods of farmers. The Government will proceed not on the basis of myth and false information, but on evidence. Every time, the previous Government ducked, delayed and denied the difficult decisions needed for clean energy, that made us less secure, raised bills and undermined climate action. No more."

2.3.7. Furthermore, solar farms also help regenerate soil quality, and so are helping to ensure the continued availability of high quality agricultural acreage for future generations.

2.3.8. Solar Energy UK (SEUK), an established trade association for the solar energy industry, states in 'Solar farms and food security: the facts' (2022) (Appendix A.2) that solar farms provide financial security to farmers, helping to secure the UK's food supply. Furthermore, in 'Factsheet: Solar Farms and Agricultural Land' (2024) (Appendix A.3) SEUK details that solar farms typically only disturb the soil on less than 2% of the site area, with localised disturbances from construction remedied within 1-2 years of operation, and that land can be restored at the decommissioning phase. It also notes that sites on which there had been intense arable cultivation may experience increased soil health and carbon storage. It also notes that there is currently no planning policy requiring BMV land to be used for food production.

Soils

2.3.9. The impact on soil is outlined in ES Chapter 9 Land use and Socioeconomics [APP-032]. There is predicted to be a moderate adverse effect on soil resources during construction, with a moderate beneficial effect on soil resources at decommissioning due to improved soil health. ES Appendix 2.12 Outline Soil Resources Management Plan [APP-116] sets out a framework for management of soil resources during construction of the Proposed Development. This includes setting principles for how soil will be handled and stockpiled during construction, and how soil would be reinstated. It is secured via requirement 10 of the draft DCO [APP-012] and has been developed in line with best practice. The Outline Pollution and Spillage Response Plan [APP-113] would similarly be developed in detail prior to construction and sets out methods to manage any pollution or spillage incidents during construction to prevent contamination of soils, watercourses and other receptors.

Specific matters raised in relation agricultural land and soils

Table 2-1 Specific matters raised in relation to agricultural land and soils and RWE response

Examination Library Reference	Matter raised	RWE Response
RR-141	Concern that soil will not returned to farming after 40 years of operation of the Proposed Development, as evidence shows the temperature below solar	This is not an observable effect of solar panels. Vegetation is capable of growing underneath them. The shading throughout the day will be

Examination Library Reference	Matter raised	RWE Response
	panels is between 0.5 and 2.5 degrees Celsius higher than the air temperature, which can affect plant growth and germination.	advantageous to certain plants and to any sheep grazing.

2.4. Alternative options to the Proposed development

Summary of matters raised in Relevant Representations

2.4.1. Some Relevant Representations stated a preference for wind generated energy, both on-shore and off-shore (including floating wind turbines), stating that there is greater Government support for wind power than solar power; that wind power has a lower carbon footprint; and that it is more efficient.

2.4.2. Representations also suggested that solar panels should be provided on existing brownfield and industrial sites (such as in Teesside, around Hardwick substation and Redcar); sites alongside motorways; and utilising residential and industrial rooftops, rather than on fields. Some Representations also stated that solar energy generation located in the north east would not benefit the rest of the country.

RWE response

2.4.3. The Applicant acknowledges that there is a need for a range of renewable energy projects in order to secure the UK's energy security, and in order to reach our net zero targets. Byers Gill Solar would generate enough electricity to power up to 70,000 homes and store excess energy generated, further supporting the growth of renewable energy production in the UK. The need for solar energy generation, as part of a wider portfolio of low or zero carbon energy infrastructure, is reflected in the suite of National Policy Statements (NPS) for Energy designated in January 2024, in which solar is identified as 'critical national priority' (CNP) infrastructure.

2.4.4. As the cheapest form of energy, as well as being clean renewable energy, a fivefold increase in solar capacity is anticipated by 2050 in the Government's Energy Security Strategy 2022. This cannot be achieved through rooftop and brownfield solar installations alone, as they have considerable practical barriers of their own. Many domestic and industrial buildings either do not have roofs made of suitable material to support a solar system, do not have the infrastructure to export electricity to the grid, or simply present as an unaffordable solution, with initial costs of installation too high for some. As a result, agricultural land typically of moderate or low quality is also used, without impacting on food security.

2.4.5. Paragraphs 3.2.6 to 3.2.8 of NPS EN-1 establish the significant weighting that should be applied to decision making when determining an application which falls within the parameters of CNP infrastructure:

"The Secretary of State should assess all applications for development consent for the types of infrastructure covered by this NPS on the basis that the government has demonstrated that there is a need for those types of infrastructure which is urgent, as described for each of them in this Part.

In addition, the Secretary of State has determined that substantial weight should be given to this need when considering applications for development consent under the Planning Act 2008.

The Secretary of State is not required to consider separately the specific contribution of any individual project to satisfying the need established in this NPS."

2.4.6. Additionally, paragraphs 5.2.10 to 5.2.12 of the Planning Statement [APP-163] submitted with the DCO summarise the position of the NPS on consideration of alternative proposals:

"Paragraphs 4.3.9 and 4.3.15-16 of NPS EN-1 state that there is no general requirement within the NPS to consider alternatives or establish whether the proposed development is the best option. There are specific circumstances in which legislative frameworks such as the Habitats Directive require alternatives to be considered, and the ES must include information about reasonable alternatives. There are other prescribed circumstances in which policy requires the consideration of alternatives.

Paragraphs 4.3.18-29 of NPS EN-1 set out the decision-making criteria for the SoS where there is a requirement for the consideration of alternatives. Consideration should be proportionate, and only alternative proposals which deliver the same capacity in the same timescales should be considered. Only alternatives which meet the objectives of the proposed development should be considered. Proposals should not be refused because fewer adverse impacts would result from developing similar infrastructure on another suitable site.

Alternatives which were not studied by the applicant in the ES should only be considered if the SoS thinks they are important and relevant to the decision. As proposals have to be assessed against the relevant NPS, the existence of an alternative proposal is unlikely to be important and relevant and 'vague and immature' alternatives should not be considered. Should a third party propose an alternative after an application has been made, the applicant is not expected to have considered this."

2.4.7. The Applicant considers that the entirely different proposals or schemes put forward in the Relevant Representations, such as a wind farm or rooftop solar, are 'vague and immature' alternatives as defined in the NPS and would not be proportionate to consider, as they would not deliver the same capacity in the same timescales. There is subsequently no requirement for the Applicant or the Secretary of State (SoS) to consider them further.

2.4.8. The Applicant has however set out in ES Chapter 3 Alternatives and Design Iteration [APP-026] how alternatives have been considered in the siting and design of the

Proposed Development. This includes consideration of irradiance, in which the north-east was identified as having suitable levels of irradiance to gain a viable yield and contribute to the national energy need. Paragraphs 5.2.18 to 5.2.27 of the Planning Statement [APP-163] set out in full how the Applicant's consideration of alternatives is compliant with the NPS.

2.5. Biodiversity

Summary of matters raised in Relevant Representations

2.5.1. Some Relevant Representations were concerned about negative impacts on biodiversity, with some stating that the Applicant's own assessment acknowledges that biodiversity would be affected. Some Representations considered that the proposed mitigation would not fully compensate for any negative impacts. Some Representations expressed concern that renewable energy generation is being prioritised over biodiversity conservation. It was considered by some that the Proposed Development would undermine the Government's '30 by 30' commitment (in which the UK Government committed to conserve a minimum of 30% of land and sea for biodiversity by 2030).

2.5.2. Concerns raised related to a wide range of wildlife in the local area and the loss of habitat, noting that many species in the area are endangered. Representations raised concerns such as the impact of the Proposed Development on green infrastructure routes used by wildlife; whether fencing would impede wildlife access; and whether the Proposed Development would enable poaching by directing animals to certain locations (e.g. via specific access points in fencing).

2.5.3. Representations noted protected biodiversity areas nearby to the site and raised concern about the potential for negative impact on them. Concerns raised regarding specific parts of the Order Limits include Panel Area F being used by migrating geese and curlews; some of the trees to be removed are suitable for bats; and that there are badger setts near Panel Area C. The impact of the proposed infrastructure in the vicinity of Square Wood was also raised.

RWE response

2.5.4. The Applicant acknowledges that the Proposed Development is located in an ecologically rich area, surrounded by internationally and nationally important sites and many protected and declining species. ES Figure 6.1 Designated Sites [APP-061] illustrates the identified internally, nationally and locally important designated sites in relation to the Order Limits.

2.5.5. ES Chapter 6 Biodiversity [APP-029] provides an assessment of effects on internationally, nationally, and locally designated sites of ecological or geological conservation importance, on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity, including irreplaceable habitats. It concludes that there would be no significant effects arising

from the Proposed Development, including Square Wood and protected biodiversity areas within close proximity.

2.5.6. This assessment and the design of the Proposed Development have been informed by desk-based data analysis and site surveys, including:

- a UK habitat survey (ES Appendix 6.1/Figure 6.1 – APP-062 and APP-26 respectively)
- wintering bird surveys (ES Appendix 6.2, APP-127)
- breeding bird surveys (ES Appendix 6.3, APP--128) and;
- bat surveys (ES Appendix 6.4, APP-129).

2.5.7. As set out in ES Chapter 6 Biodiversity [APP-029], the Proposed Development will include areas within the Order Limits reserved for biodiversity enhancement and includes a range of measures to protect and conserve specific species present on the site. For example:

- Iterative design of the Proposed Development has avoided those fields where the majority of breeding lapwing and curlew were identified and also where significant numbers of wintering wildfowl had been recorded.
- A large area of Panel Area F is to remain free of solar panels and managed for ground-nesting birds, such as lapwing (Vanellus vanellus) and curlew (Numenius arquata). This area will comprise a flower-rich meadow mix and be subject to late-summer cutting, to ensure that nesting birds are not disturbed. This initiative is expected to positively impact the bird species within the Order Limits.
- The provision of habitat under and around panels including cover crops and herbal leys will improve the insect biomass providing additional foraging resource and a supply of winter seed for small passerine species such as skylark.
- The project will incorporate wildflower meadows, tussock grasslands, and wild seed bird mix along the field margins. The hedgerows across the Order Limits will also be enhanced. Together, these measures will significantly increase biodiversity across the agriculturally managed landscape within the Order Limits, which currently exhibits limited species diversity.
- Lost hedgerows will be replanted, with gaps to be stocked up and management relaxed on others to provide enhanced foraging habitat for bats and birds and nesting habitat for birds. This will result in a hedgerow creation forecast of approximately 12km and hedgerow enhancement of approximately 29km.
- There will be 8m buffers (3m from hedgerows to security fencing and 5m from security fencing to Solar Cells) between Solar PV modules and hedges to retain foraging and commuting corridors. These buffers will enable large mammals such as deer to able to continue to move between fields and ensure the Solar development is permeable to them. Fencing will not be buried so foraging badgers will be able to push up under the fence to forage under panels should they wish – as they do with standard agricultural stock fencing.
- Badger sett locations are known and the scheme design has included a sufficient buffer to ensure no disturbance to existing setts.
- A total of seven trees which were identified as suitable bat roost trees will be removed through the Proposed Development. These trees will undergo pre-construction checks to determine the presence or absence of a bat roost. If a bat roost is located, a bat licence

will be required before the start of works and appropriate mitigation agreed as part of the licence conditions.

2.5.8. The proposed new habitat creation and enhancement provided through the Proposed Development is expected to have long-term, beneficial impacts on the area, with a significant net gain in biodiversity of 87.85% in habitat biodiversity units and a 108.12% net gain in hedgerow biodiversity units, as set out in ES Appendix 6.6 Biodiversity Net Gain Report [APP-131].

2.5.9. SEUK has introduced a standardised approach to monitoring biodiversity on solar farms. The report 'Solar Habitats 2024: ecological trends on solar farms in the UK' (Appendix A.4) states that

"*analysis indicates a positive relationship between specific management with greater biodiversity focus for biodiversity and plant and animal abundance. It also shows that the presence of diverse plant and invertebrate species has a positive impact on the abundance of bird species.*"

2.5.10. The concern by some Representations regarding poaching is acknowledged, however it is outside of the control of the Applicant and would be a matter for the relevant authorities. CCTV would be in place along security fencing associated with the onsite substation and energy storage system.

2.5.11. Given the above, the Applicant therefore considers that the concerns raised regarding the biodiversity effects of the Proposed Development are already sufficiently addressed. The Proposed Development would not result in any significant adverse effects and would result in an overall improvement to biodiversity once in operation, whilst securing measures via the DCO to ensure the protection of habitats and species during construction.

Specific matters raised in relation to biodiversity

Table 2-2 Specific matters raised relating to biodiversity and RWE response

Examination Library Reference	Matter raised	RWE Response
RR-510	The Representation raises concerns regarding the proximity of the Proposed Development to Carr House Pond SNCI, which neighbours the respondent's property.	Paragraph 6.10.7 of ES Chapter 6 Biodiversity [APP-029] considers the effects of the Proposed Development on the Carr House Pond local wildlife site (LWS). It recognises that '*Carr House Pond is important in regard to its pond and marshy grassland*' and the assessment concludes that there would be negligible impacts on these sites. This is because security fencing will be in place to protect the site before construction starts and there would be light, noise and pollution control measures that are secured via ES

Examination Library Reference	Matter raised	RWE Response
		Appendix 2.6 Outline Construction Environmental Plan [APP-110].
RR-143	Concern regarding impact on farmland birds and waterfowl. Concern that water birds could potentially mistake the solar panels for water.	There is some indication in the scientific literature about a perceived effect of birds mistaking solar arrays for water similar to wet carparks and colliding with them. However, RSK – the Applicant's competent experts on biodiversity and ecological matters – conducted a detailed review of the literature in 2023 and found no actual published evidence of this being the case. The design of the Proposed Development has carefully avoided those fields with waterbodies in them and the design of the scheme has wide buffers from boundary hedgerows and gaps between the arrays which all help to break up the outline of the array making it seem less like a large body of water and modern panels are generally less reflective than older designs, again minimising the potential for water fowl to mistake panels for water.
RR-535/RR-348	Concern that during construction of another nearby solar farm (Whinfield Solar Farm), the ground was covered in dolomite prior to panels being installed, which if used on Byers Gill Solar, would inhibit vegetation growth.	We cannot comment on another developer's construction methods, however it is highly unlikely dolomite would be used in this manner. It is possible it would be used for access roads. Prior to construction, a simple grass mix would be spread following the final removal of crops. This would act to bind the land in order for construction to be carried out. We propose a simple compacted gravel for the Byers Gill Solar access roads.

2.6. Cable route

Summary of matters raised in Relevant Representations

2.6.1. Some Representations stated concerns relating to the timescale for the Proposed Development to connect to the National Grid.

2.6.2. Some Representations expressed concern regarding the impact of the proposed on-road cable route on the trees in Bishopton village. Some Representations stated concern that properties would be damaged as a result of the on-road cable route.

RWE response

2.6.3. The Applicant has secured a grid connection for the Proposed Development, as detailed in the Grid Connection Statement [APP-168].

2.6.4. The DCO application includes cable route options rather than one single defined route to provide sufficient flexibility to ensure that the Proposed Development is deliverable. The Applicant has expressed a preference within the DCO application for off-road cable routes, in part due to the reduced potential impact and disruption to the local road network of this option compared to the on-road cable routes. These are depicted in ES Figure 2.13 [AS-019]. The Applicant also provided further detail on the cable route options and how it intends to determine the final cable routes as part of the Proposed Development in its response to Rule 9 request for information [AS-008].

2.6.5. On 28 June 2024, the Applicant submitted updated information to the Examination to remove the proposed on-road cable route through Bishopton village; the details of which are available in the Applicant's notification of intention to submit new or revised information to the ExA [AS-010]. This amendment to the Proposed Development is the result of successful progression of voluntary land agreements, which enable the Applicant to drop the on-road cable route option through Bishopton and commit to an alternative off-road route. The Applicant therefore considers that the concerns raised regarding impacts to Bishopton are sufficiently addressed through this change, which it is acknowledged that it was made after the Relevant Representation deadline.

2.6.6. In relation to the installation of on-road cable routes across the Proposed Development (should they be required) there are no expected effects from the construction of the cable route on the structural integrity of residential housing. ES Chapter 11 Noise and Vibration [APP-034] outlines that, as a worst-case scenario, earthworks and construction works may potentially take place at a distance of approximately 15m from existing residential properties. This vibration would also be transient only and for very limited periods during the works (i.e. when activities take place at the site's boundaries, close to dwellings).

2.6.7. The Applicant will seek to minimise disruption as much as possible during the construction period. Measures to avoid or reduce the effects of construction of the cable routes during construction are secured through the DCO, including the Outline Construction Environmental Management Plan [APP-110] and the Outline Construction Traffic Management Plan [APP-012].

Specific matters raised

Table 2-3 Specific matters raised relating to cable routes and RWE response

Examination Library Reference	Matter raised	RWE Response
RR-005	Concern that the cable route has not yet been decided and was concerned that the Applicant	The DCO application includes cable route options rather than one single defined route to provide sufficient flexibility to ensure that the

Examination Library Reference	Matter raised	RWE Response
	would lay the cables in any location.	Proposed Development is deliverable. The Applicant has expressed a preference within the DCO application for off-road cable routes. The cable route options are depicted in ES Figure 2.13 [AS-019]. The Applicant also provided further detail on the cable route options and how it intends to determine the final cable routes as part of the Proposed Development in its response to Rule 9 request for information [AS-008]. The potential location of the cables is restricted via Schedule 1 of the draft DCO [APP-012] which defines the cable routes as Work No 3 and Work No 5. The extent of these works is shown on the Works Plans [AS-013]. The cable route would not be able to be located outside of the defined Work No 3 and Work No 5 areas and could not extend beyond the Order Limits of the DCO.
RR-175	Considers that the cable runs are excessive and require too many joint bays requiring potential repair and maintenance. Request for more detail on cable specification and joint bay numbers and size. The Representation queries why the Proposed Development cannot connect into the existing 132kV line running adjacent, via an onsite substation. Comment that there has been no consultation between this project and other solar projects in the area, creating increased impact on local roads for cabling.	The number of joint bays, numbers and size are not available at this stage of design. This matter of detail will be settled at the detailed design stage should the consent be granted, however the processes and technologies are mature and well-established across the industry, and the Applicant considers there to be no reason to think that the Proposed Development is not deliverable with conventional arrangements of these elements. The Proposed Development is connecting to the Norton substation as that is where capacity exists to connect the electricity generated by the solar farm to the National Grid. RWE have not been offered the capacity to connect to the 132Kv line running close to the site. RWE are aware of the other developments that would require similar cable routing, and would seek to engage, via the community liaison officer (to be secured via Requirement 4 of the dDCO), with other developers as far as is practicable once further design has been carried out following the grant of development consent.

Examination Library Reference	Matter raised	RWE Response
RR-510	Concern that there is no information of how cable routes would be laid to the on-site substation and no map provided showing the routes.	The cable route options for the Proposed Development were provided at time of DCO application and are depicted in ES Figure 2.13 [AS-019]. They were also provided at statutory consultation via PEIR Figure 2.10 Underground Cable Routes. ES Chapter 2 The Proposed Development [APP-025] provides information on how the cable routes would be installed. It states in paragraph 2.3.27-28: *"It is anticipated that underground cables would be installed using a cable plough, wherever possible. This is considered to be the most efficient and least impactful method of cable installation, causing minimal disruption to the ground, by cutting, installing and back-filling in one operation. The underground cables will be located in existing gaps in hedgerows wherever feasible, however this assessment assumes the loss of some hedgerows as a worst case. Trees and Hedgerows to be removed are included within ES Appendix 7.8 Arboricultural Impact Assessment [APP-138].* *Only in instances where the cable plough cannot be used, alternative methods, such as trenching or horizontal directional drilling (HDD), will be used in more constrained locations such as going underneath water courses and roads."*

2.7. Climate change

Summary of matters raised in Relevant Representations

2.7.1. Some Representations considered that the Proposed Development would not contribute towards the UK's carbon targets. Some Representations stated that claims that the renewable energy generated would help to tackle climate change were undermined by a perceived lack of concern for the biodiversity crisis, due to the negative impact of the Proposed Development on wildlife.

2.7.2. Some Representations claimed that flooding from the Proposed Development would exacerbate climate change related flooding, and one Representation claimed that the loss of agricultural land would make it necessary to import food with associated CO2 emissions, to the detriment of the reduced emissions resulting from energy generated by the Proposed Development.

2.7.3. Some Representations raised concern around the carbon / environmental impact of importing solar panels from China, and of traffic associated with the Proposed Development.

RWE response

2.7.4. The UK has made a legally binding commitment to achieve net zero carbon emissions by 2050. This can only be achieved with the roll-out of reliable, affordable, clean energy sources such as solar. Solar farms, such as Byers Gill Solar, would make a meaningful contribution to local and national climate commitments, reducing our impact on the environment and contributing to energy security. Byers Gill Solar would generate enough electricity to power up to 70,000 homes and store excess energy generated, further supporting the growth of renewable energy production in the UK. This need is also further established in NPS EN-1, as referenced in section 2.4.5 of this document.

2.7.5. The Proposed Development has been designed to avoid and prevent adverse environmental effects on climate change through the process of design development and consideration of good design principles. Embedded mitigation measures for climate change are reported in ES Chapter 2 The Proposed Development [APP-025]. ES Chapter 5 Climate Change [APP-028] concludes that there would be no significant adverse effects arising from the Proposed Development, with a significant beneficial effect arising from the production of low carbon energy during operation. This assessment takes account of the embodied carbon of materials, including an assumption that PV cells will be sourced in China. Table 5-9 of the assessment considers the impact on the transportation of products and materials to the Proposed Development, in addition to worker commuting and associated fuel use.

2.7.6. As stated in Section 2.5, the Proposed Development would result in an overall biodiversity net gain and would not result in any significant effects to biodiversity. As stated in Section 2.2, the Proposed Development would utilise only a small proportion of Best and Most Versatile (BMV) agricultural land and would not comprise food security, as evidenced in Section 2.3. As stated in Section 2.15, the Proposed Development would not increase risk of flooding. This has been assessed taking into account rainfall patterns due to climate change, as reported in ES Appendix 10.1 Flood Risk Assessment and Drainage Strategy [AS-001]. It should be noted that the Applicant intends to provide a further revision of ES Appendix 10.1 Flood Risk Assessment and Drainage Strategy [AS-001] during the Examination, following engagement with the Environment Agency.

2.8. Concerns regarding the Battery Energy Storage Systems (BESS)

Summary of matters raised in Relevant Representations

2.8.1. Some Relevant Representations raised fire safety concerns regarding the BESS, including concerns over the fire being allowed to burn out; toxic fumes; fire water being contaminated and how this would be managed; thermal runaway from lithium-ion batteries; and whether fire engines would be able to sufficiently access the BESS. The

Battery Safety and Fire Management Plan was considered by some Representations to be insufficient.

2.8.2. Some Representations raised safety concerns regarding the location of the BESS to residential homes, the recreation area, school and elderly persons' bungalows. The possibility of the BESS leaking was raised. One Representation stated that a Design Risk Assessment should be completed, identifying a hierarchy of mitigation, where risk to life has been identified, properly considered and robustly mitigated.

RWE response

2.8.3. The Applicant acknowledges the concerns raised with regards to the ongoing safety of residents. Safety for local communities, construction workers and local wildlife is a key priority for the Applicant during the construction, operation and decommissioning of the Proposed Development. Impacts from potential fire/explosion in relation to the BESS has been assessed within ES Appendix 2.5 Major Accidents and Disasters Assessment [APP-104]. It concludes that the reasonable worst-case risks relating to BESS are managed to an acceptable level taking into account the mitigation proposed and secured through the DCO.

2.8.4. The DCO application is supported by ES Appendix 2.13 Outline Battery Fire Safety Management Plan (oBFSMP) [APP-117], which sets out how the measures for ensuring safety is at the forefront of the Proposed Development. It considers specific risks and concerns raised in the Representations such as thermal runaway, access and water contamination. This plan has been developed with regard to the National Fire Chief's Council (NFCC) Grid Scale Battery Energy Storage System planning – Guidance for Fire and Rescued Services, and in consultation with the local Fire and Rescue service.

2.9. Construction

Summary of matters raised in Relevant Representations

2.9.1. General concerns were raised in Representations regarding construction noise and traffic, and the length of the construction period. Issues with the construction of other solar schemes in the local area were also noted, including increased litter, mud, dirt and dust on the roads. Some Relevant Representations also stated concern with the disruption of construction impacting wildlife.

RWE response

2.9.2. ES Appendix 2.6 Outline Construction Environmental Management Plan (oCEMP) [APP-110] was submitted with the DCO application and provides a framework to ensure that construction activities are carried out in an environmentally responsible manner, minimising adverse effects on the surrounding environment and complying with relevant environmental regulations. The provision of a detailed CEMP prior to construction will be secured as a requirement of the DCO [APP-012].

2.9.3. Alongside the oCEMP, the following Management Plans have also been produced to support the DCO application, which seek to ensure minimised effects during the construction period in relation to specific concerns such as traffic, waste and wildlife:

- ES Appendix 2.8 Outline Construction Traffic Management Plan (CTMP) [APP-112]
- ES Appendix 2.9 - Outline Pollution and Spillage Response Plan [APP-113]
- ES Appendix 2.10 - Outline Materials Management Plan (MMP) [APP-114]
- ES Appendix 2.11 - Outline Site Waste Management Plan [APP-115]
- ES Appendix 2.12 - Outline Soil Resources Management Plan [APP-116]
- ES Appendix 2.13 - Outline Battery Fire Safety Management Plan (oBFSMP) [APP-117]
- ES Appendix 2.14 - Outline Landscape and Ecology Management Plan (LEMP) [APP-118]
- ES Appendix 2.15 - Outline PRoW Management Plan [APP-119]

2.9.4. The Applicant acknowledges concerns relating to experiences with other solar farm development in the wider area, however these are not developments being delivered by the Applicant and therefore the management of them is not within its control. At point of construction of the Proposed Development, should it be granted consent, the Applicant will seek, via the community liaison officer (to be secured via Requirement 4 of the dDCO), to liaise with any other coinciding developments to co-ordinate effectively where possible.

2.10. Cultural heritage

Summary of matters raised in Relevant Representations

2.10.1. Some Relevant Representations noted areas of historic importance nearby to the Proposed Development and stated that these would be negatively impacted. These included the World War Two (WW2) air strip, Castle Hill, a Norman church, and Bishopton Conservation Area. With regards to the latter, Panel Areas E and F were highlighted as being particularly impactful.

RWE response

2.10.2. ES Chapter 8 Cultural Heritage and Archaeology [APP-031] identifies that heritage assets in the vicinity of the Order Limits include Bishopton Conservation Village, a number of listed buildings, Bishopton Landing Ground (a World War One airfield), areas of known archaeological remains, and a motte and bailey castle.

2.10.3. To aid identification of below ground assets, geophysical survey has been undertaken and is reported in ES Appendix 8.3 Detailed Gradiometer Survey Report [APP-147], whilst an initial phase of trial trenching has been carried out and is reported in ES Appendix 8.4 Phase 1 Evaluation Trenching Report [APP-148].

2.10.4. The heritage assets assessed have either medium or low heritage significance. ES Chapter 8 Cultural Heritage and Archaeology [APP-031] concludes that there would be no significant effects to cultural heritage, including designated heritage assets, as a result of the Proposed Development. This conclusion is agreed with Historic England,

as reflected in the Statement of Common Ground (SoCG) with Historic England provided at Deadline 1 (Document Reference 8.4.5). The Secretary of State for Energy Security and Net Zero noted in his decision letters for two recent solar DCOs, Gate Burton (in paragraph 4.78) and Mallard Pass (in paragraph 4.35) respectively, that any residual moderate adverse significant effect or less than substantial harm to heritage assets would be outweighed by the wider public benefits of the scheme.

2.10.5. Opportunities for enhancement of heritage assets are also outlined in ES Chapter 8 Cultural Heritage and Archaeology [APP-031]. The Proposed Development offers the opportunity for heritage benefits to the local community of Bishopton through the enhancement of knowledge, understanding and engagement with the First World War airfield which is located within the Order Limits. The specific measures should be formulated in consultation with the local community and interested local stakeholders along with representatives from the local planning authorities (LPAs).

2.11. Cumulative effects

Summary of matters raised in Relevant Representations

2.11.1. Some Relevant Representations raised concerns regarding the cumulative effects of the Proposed Development alongside other solar energy developments in the local area. These concerns were mostly general, however some specific issues cited were the potential for negative impacts on existing infrastructure; the local landscape; residents' mental health; and access to Public Rights of Way (PRoW). Concern was also raised by some Representations that having a concentration of solar schemes could lead to the area being targeted for crime.

2.11.2. Some Relevant Representations stated that existing schemes had not being considered adequately in the cumulative assessment.

RWE response

2.11.3. As part of the DCO application, the Applicant has prepared ES Chapter 13 Cumulative Effects [APP-036], which takes into account and assesses the combined and cumulative impact on other proposed, in-planning or in-construction developments, and seeks to conclude the overall effect of these, should they all be built. The list of developments included in the assessment has been agreed in consultation with DCC, DBC and SBC. It is important to note that projects which are already in operation are not included specifically in this assessment, as they have been considered part of the 'baseline' information, and are therefore assessed as part of the existing environment against which the Proposed Developments effects are assessed.

2.11.4. ES Chapter 13 Cumulative Effects [APP-036] concludes that there would be no significant effects, however the cumulative effect of renewable energy production development is a notable beneficial effect which could be significant in EIA terms given its potential national influence.

2.11.5. As stated in section 2.9 of this document, the Applicant has mitigation and control measures secured in the DCO which would seek to ensure that the effects of construction on the local community are minimised wherever possible. At point of construction of the Proposed Development, should it be granted consent, the Applicant will seek, via the community liaison officer (to be secured via Requirement 4 of the dDCO), to liaise with any other coinciding developments to co-ordinate effectively where possible.

2.12. Decommissioning

Summary of matters raised in Relevant Representations

2.12.1. Some Relevant Representations stated that the land in the Order Limits would not be returned to its current state following decommissioning, with specific concerns being that it would be polluted and so not suitable for agriculture, and that it would be classified as brownfield land and so would be developed. Some Relevant Representations queried the disposal of lithium batteries, and whether the solar panels would be recycled.

2.12.2. Concerns were also raised regarding a perceived lack of information regarding decommissioning and how this would be financed.

RWE response

2.12.3. Under requirement 5 of the DCO [APP-012], the Proposed Development would require decommissioning after 40 years of operation. The process of decommissioning would involve the removal of all solar infrastructure, including the solar PV modules, cabling and on-site supporting equipment, from the site to be recycled or disposed of in accordance with good practice and processes at that time. Any requirements to leave certain infrastructure, for example access tracks, would be discussed and agreed with landowners as part of the decommissioning process. An Outline Decommissioning Environmental Management Plan (DEMP) [APP-111] has been prepared in support of the DCO application, which sets out the general principles to be followed in the decommissioning of the Proposed Development. Under Requirement 5 of the draft DCO [APP-012] further detailed plans would be required prior to commencing any decommissioning and would require approval from the local planning authority.

2.12.4. The planning consent granted to the proposed development is temporary. There would be no change to the planning status of the land once the solar farm is decommissioned. The land used for the Proposed Development would be returned to its original use with areas of established mitigation left in situ where possible and in agreement with the landowner. Any future land use would require a planning or other land use consent to be determined under the prevailing regime and policy in place at that time.

2.12.5. The Environmental Statement submitted with the DCO application considers the effects of decommissioning activities on the environment. This finds that there would

be some beneficial effects of the Proposed Development once decommissioned. For example, in regard to landscape, the Proposed Development would leave a positive legacy of improved landscape fabric and character due to the denser hedgerows and maturing trees which would be left after the lifetime of the operational development. It would also result in improved soil health.

2.13. Glint and glare

Summary of matters raised in Relevant Representations

2.13.1. Some Relevant Representations stated their concern regarding the impact of glint and glare on drivers, birds, Bishopton Primary School and into residents' homes. There were also concerns regarding the independence of the glint and glare assessment, noting that it is always the same company which conducts these.

RWE response

2.13.2. ES Appendix 2.2. Solar Photovoltaic Glint and Glare Study [APP-106] has been produced by Pager Power, a leading specialist consultancy which provides independent glint and glare assessment. The study considers the potential impacts of the Proposed Development towards the identified receptors by undertaking geometric calculations and intensity calculations where required. Glint and glare modelling has been undertaken at several points in the design process such that the findings of the assessment have informed the design of the Proposed Development, including measures such as screening.

2.13.3. The study identifies that a moderate impact of glint and glare is predicted on three sections of road and ten dwellings, however with the planting and operational maintenance of that planting, as secured via the DCO, the impact would be reduced to low/none.

2.14. Human health

Summary of matters raised in Relevant Representations

2.14.1. Some Relevant Representations stated their concern regarding the impact of the Proposed Development on residents' mental health and wellbeing. The impacts on physical health were also raised, noting that these impacts may as yet be unknown.

2.14.2. Representations also noted the impact of electromagnetic radiation, and one Representation stated that some people may suffer from electromagnetic sensitivity.

RWE response

2.14.3. As reported in ES Chapter 4 Approach to EIA [APP-027] a standalone chapter assessing effects of the Proposed Development on human health was scoped out of the ES, as it is anticipated that there would be limited impacts on human health during the construction and operation of the Proposed Development. Aspects of human health

are considered in the ES within the context of other topics, namely: Landscape and Visual [APP-030] and Land Use and Socioeconomics [APP-032].

2.14.4. ES Chapter 4 Approach to EIA [APP-027] also reflects that the assessment of electric, magnetic and electromagnetic fields was scoped out of assessment. There is no evidence that there are any perceptible impacts of electromagnetic radiation from any of the infrastructure resulting from the Proposed Development, or other solar projects.

2.14.5. With regard to protection of public health, management plans are included in the DCO application which secure the implementation of measures during construction, operation and decommissioning which would seek to avoid or reduce risks relating to human health including:

- ES Appendix 2.6 Outline CEMP [APP-110]
- ES Appendix 2.7 Outline DEMP [APP-111]
- ES Appendix 2.8 Outline CTMP ([APP-112]
- ES Appendix 2.9 Outline Pollution and Spillage Response Plan [APP-113]
- ES Appendix 2.13 Outline Battery Fire Safety Management Plan [APP-117]

2.14.6. These plans are secured via requirements of the draft DCO [APP-012].

2.14.7. Furthermore, section 2.8 of this document provides information on the Applicant's approach to safety in relation to the proposed BESS, including ongoing engagement with the local Fire and Rescue services.

2.15. Hydrology

Summary of matters raised in Relevant Representations

Increased flood risk

2.15.1. Some Relevant Representations stated their concern that the Proposed Development would increase flood risk in the area, highlighting issues such as soil compaction, the alteration of drainage channels, and increased surface water flow. There were perceptions that the area is prone to flooding; that there has been increased flooding this year; and that the local roads are frequently impassable due to flooding. Folly Bank Road, Mill Lane and Church View were specifically cited as roads prone to flooding.

2.15.2. Concerns were raised regarding a negative impact on watercourses, including runoff carrying pollutants into watercourses.

2.15.3. Some Representations noted that there are land drains beneath some of the fields within the Order Limits, and that these could be damaged during construction, creating or exacerbating flooding issues. This includes drainage installed on the site of a former pond area near to Bishopton and Redmarshall Primary School.

RWE response

2.15.4. The effects of the Proposed Development on the water environment are assessed in ES Chapter 10 Hydrology and Flood Risk [APP-033]. It concludes that there would be no significant effects in relation to watercourses, designated sites, groundwater, water supplies and flood risk.

2.15.5. ES Appendix 10.1 Flood Risk Assessment and Drainage Strategy [AS-001] is provided with the DCO application and specifically considers flood risk. The overarching principle of the drainage strategy for the Proposed Development is to provide Sustainable urban Drainage System (SuDS) at source, ensuring that surface water run-off is managed as per existing site conditions. Formal SuDS features including engineered pipe runs, manholes and storage features are not proposed due to the nature of the development and the minimal impact on surface water runoff. The proposed drainage scheme therefore comprises of grassland/wildflower mix under the solar PV panels; an apron of clean crushed stone for BESS and other supporting infrastructure; and permeable aggregate over geotextile membrane for access tracks, requiring no drainage.

2.15.6. Furthermore, ES Appendix 10.1 identifies how critical infrastructure has been sited and designed to avoid flood risk impacts. This includes:

- no critical infrastructure has been placed inside of the fluvial or pluvial higher risk flood zones
- access tracks are at grade
- the crossing proposed over the Bishopton Beck will utilise an existing bridge crossing
- the solar PV modules will be 800mm above the ground, placing them above the 1.0% pluvial flood level used to approximate the fluvial flood level.

2.15.7. ES Appendix 10.1 [AS-001] concludes that the Proposed Development will be safe for its lifetime and will not impact flood risk on site or off site. The infrastructure is positioned such as not to impede flow routes and will have a negligible impact on floodplain storage.

2.15.8. The Applicant acknowledges concerns regarding existing flooding on roads in the area, however this is not within the control of the Applicant and should be raised with the relevant local authority. As cited above, the Proposed Development would not increase flood risk or exacerbate these existing issues.

2.15.9. In relation to land drains, as reflected in the Mitigation Route Map [APP-171], ground investigations would be undertaken prior to commencement to inform detailed design. This would seek to reduce existing uncertainties such as buried infrastructure or potential for contamination, and would inform the detailed drainage design. Furthermore, the Outline Pollution and Spillage Response Plan [APP-113] is provided with the DCO application and would be developed in detail prior to construction. It sets out methods to manage any pollution or spillage incidents during construction to prevent contamination of soils, watercourses and other receptors.

Table 2-4 Specific matters raised in relation to hydrology and RWE response

Examination Library Reference	Matter raised	RWE Response
RR-348	Concern that the Order Limits are in the catchment area for the Teesmouth and Cleveland Coast SPA, and therefore that the Proposed Development should be subject to the same nitrate neutrality testing that other developers have to undertake.	The matter of nutrient neutrality does not apply to all types of development and as identified on the DBC website[1], is focused on those which include overnight development, would increase day visitors (i.e. tourism), agricultural development and anaerobic digesters. The Proposed Development does not fall within such categories. The Proposed Development is located in a nitrate vulnerable zone. As reported in ES Chapter 10 Hydrology and Flood Risk [APP-033], the change of use from agriculture to solar PV modules and grassland would result in a likely reduction of nitrates entering watercourses due to cessation of use of nitrate.
RR-075	Concern that water requirements for cleaning and cooling solar panels are substantial and can strain local water resources.	No water would be required to clean or cool solar panels during operation of the Proposed Development.

2.16. Impact on nearby properties and businesses

Summary of matters raised in Relevant Representations

2.16.1. A number of Representations raised general concerns about the negative impact of the Proposed Development on their property and the local area as a whole. In addition to concerns around the impact of construction and operation of the Proposed Development, this concerns were raised regarding a potential reduction in property prices and the ability to sell homes.

2.16.2. Some Representations stated concern regarding the loss of privacy as a result of the proposed CCTV. Some Representations were concerned about the impact of fencing on the amenity of neighbouring properties.

2.16.3. A number of Representations raised matters in relation to their property which relate to land and acquisition or specific impacts to a business. These are summarised in Table 2-5 and responded to separately.

[1] https://www.darlington.gov.uk/environment-and-planning/planning/nutrient-neutrality/nutrient-neutrality-advice/

RWE response

2.16.4. The Applicant considers that many of the general concerns raised regarding impact on respondents' properties are addressed within other sections of this document, such as the section on BESS (Section 2.8), construction (Section 2.9), cumulative effects (Section 2.11), landscape (Section 2.17), noise (Section 2.19), operational impacts (Section 2.20) and traffic (Section 2.24).

2.16.5. The Applicant acknowledges concerns relating to house prices, however private property value is not considered to be a material matter in the determination of planning consent.

Specific matters raised

Table 2-5 Specific matters raised in relation to impacts on nearby properties and businesses and RWE response

Examination Library Reference	Matter raised	RWE Response
RR-009	The Respondent owns a property adjacent to the proposed on-road cable route through Bishopton, and claims subsoil ownership. The Representation objects to this cable route due to concerns for structural damage to their property.	The previously proposed on-road cable route through Bishopton has since been removed from the Order Limits, as submitted in the Applicant's notification of intention to submit new or revised information to the ExA [AS-010].
RR-086	Expressed support for the Proposed Development as a landowner involved in the project. Respondent stated that the Proposed Development would have a positive impact on their farming business, as a result of improved soil quality, and would enable nature recovery. Respondent noted that they hope to farm sheep and manage a grassland farm whilst the Proposed Development is operational, and that arable farming is challenging due to access via Brafferton village and parked vehicles and narrow lanes.	RWE works in partnership with landowners to deliver solar projects that benefit the long term viability of farm businesses.
RR-136	The Respondent operates a play centre for dogs adjacent to the Proposed Development and raises a number of concerns relating to noise and traffic impacts during construction, ecological impacts, the effect on Redmarshall Road and	The Applicant is seeking an off-road cable route in this area that would not impact access or transport on Redmarshall Road. In the case of the on-road option, access to properties would be maintained and works in the road to lay the cable would take a maximum of 1

Examination Library Reference	Matter raised	RWE Response
	access to the business, negative impacts on the business, operational noise.	week in the vicinity. Redmarshall Road is not on a construction traffic route. It is not considered that the construction or operation of the panel areas would impact this business given the distance from the Proposed Development.
RR-209	The Representation states their concern regarding the safety of their horses, noting that they are in an adjacent field to Panel Area F.	It is accepted that the noise generating activities during construction may have an impact on horses stabled in close proximity to the panel areas. RWE would seek to understand whether construction activities can be timed to avoid impacts on the livery. Alternative piling techniques could be used in the vicinity of liveries to minimise the noise generated.
RR-362	The Respondent is an affected landowner and also run a kennel business from their property. They raise concerns related to cumulative visual effects, negative impact on the business, noise pollution, adequacy of planting mitigation, flooding impacts on their land, safety issues related to the BESS, ecological impacts, alternatives, and increased crime.	In terms of the negative impacts on the business, RWE would seek to understand whether construction activities can be timed to avoid impacts on the dog kennel business. Alternative piling techniques could be used in the vicinity of the dog kennel business to minimise the noise generated. It is not anticipated that the proposed development would cause any flooding issues to the business in question. Impacts from potential fire/explosion in relation to the BESS has been assessed within ES Appendix 2.5 Major Accidents and Disasters Assessment [APP-104]. It concludes that the reasonable worst-case risks relating to BESS are managed to an acceptable level taking into account the mitigation proposed and secured through the DCO.
RR-384	The Representation is concerned regarding the impact to High House Lane, as this is their only access route.	RWE is in discussions with this property regarding these concerns.
RR-124 and RR-515	These Representations both pertain to an affected landowner. The Representations raise concerns regarding:	RWE is in discussions with this landowner to address their concerns and explain how existing mitigation would apply.

Examination Library Reference	Matter raised	RWE Response
	▪ The use of High House Lane ▪ Drainage and flooding ▪ The proposed Darlington North Link Road ▪ Cumulative effects ▪ Cultural heritage ▪ Impact on the existing agricultural business ▪ Safety issues related to the BESS ▪ Access for maintenance and emergency services ▪ Scale of the Proposed Development ▪ Efficiency or the Proposed Development ▪ Decommissioning ▪ Changes which will affect the land and access, and what land parcels are affected ▪ Construction impacts ▪ Increased crime ▪ Impact on Lime Lane	
RR-533	Respondent operates livery business adjacent to Proposed Development and raises a number of concerns relating to health and safety, negative impacts on the business, flood risk, access, and property devaluation. The Representation makes specific mitigation requests.	RWE is in discussions with landowner to address their concerns and explain how existing mitigation would apply. It is accepted that the noise generating activities during construction may have an impact on horses stabled in close proximity to the panel areas. RWE would seek to understand whether construction activities can be timed to avoid impacts on the livery. Alternative piling techniques could be used in the vicinity of liveries to minimise the noise generated. With respect to potential property deprecation, RWE are not aware of any evidence that solar farms have any impacts on property valuations, based on RWE's project portfolio and industry knowledge. Impacts on property prices are not a material planning consideration.

2.17. Landscape and visual impacts

Summary of matters raised in Relevant Representations

2.17.1. Some Relevant Representations stated that the Proposed Development would have a negative impact on the landscape, including changing the character from rural to industrial and the loss of open views and rural views.

2.17.2. The adequacy of the Landscape and Visual Impact Assessment (LVIA) was questioned in some Representations, including the images produced to demonstrate potential impact.

Mitigation

2.17.3. Some Representations stated that the mitigation planting would take a long time to establish and would not be effective year-round. It was also suggested that the topography of the area would mean that the screening would not be sufficient.

Impact on local villages

2.17.4. Some Relevant Representations stated there would be a negative visual impact on Great Stainton due to the proximity of Panel Areas to the village and the position of the village being on higher ground. Panel Areas C and D were of particular concern in this regard. Some Representations also stated that there would be a negative visual impact on Bishopton.

2.17.5. Some Representations stated that driving along the local roads between villages would entail driving between fields of solar panels and that this would have an industrial feel.

RWE response

2.17.6. ES Chapter 7 Landscape and Visual [APP-030] is provided with the DCO application and provides a landscape and visual impact assessment, a landscape character assessment and a cumulative assessment, taking into account local and national planning policies. The chapter outlines in section 7.4 the methodology applied to the assessment, including how sensitivity has been judged, and is supported by a detailed methodology in ES Appendix 7.1 LVIA Methodology [APP-132].

2.17.7. The Applicant has also prepared and submitted a Design Approach Document (DAD) [AS-004] which outlines the approach taken to the design development of the Proposed Development, including how the design has been shaped and influenced by the local landscape, and with local communities and their enjoyment of the local area in mind.

2.17.8. ES Chapter 7 Landscape and Visual [APP-030] reports that significant adverse effects are identified during construction, operation and decommissioning of the Proposed Development, broadly relating to the receptors listed below (but not for all of these at all three stages):

- the character of LCA Darlington 6, Great Stainton and Bishopton;

- views at Great Stainton and Bishopton;
- views from Public Rights of Way (PRoW)within 1km

2.17.9. A detailed account of the significant effects is provided in ES Chapter 7, Table 7-12 [APP-030]. This sets out the specific nature of the significant effect, identifying the receptor to which it relates and the stage of the development in which it would be expected to occur.

2.17.10. ES Chapter 7 identifies significant effects on the character of Bishopton during construction if the on-road cable route were to be used. As referred to in Section 2.6 of this report, since DCO submission, the Applicant has confirmed that the off-road cable route to the south of Bishopton would be used and the Order Limits have been reduced to remove the on-road cable route through Bishopton village. As a consequence, effects on the character of Bishopton during construction would not be significant.

2.17.11. All other sensitive receptors would not experience significant effects; however a range of minor and moderate adverse effects are identified in ES Chapter 7 Landscape and Visual [APP-030].

2.17.12. It should be noted that following pre-application engagement with Darlington Borough Council, the assessment reported in ES Chapter 7 Landscape and Visual [APP-030] includes an assessment of village character, which is not generally carried out for similar solar NSIPs, or other LVIAs for any project. Some of the significant effects reported have arisen through this additional assessment.

2.17.13. Most of the significant adverse effects would arise during operation, however, they would be reversible following decommissioning. After decommissioning, the Proposed Development would leave a positive legacy of improved landscape fabric and character due to the denser hedgerows and maturing trees which would be left after the lifetime of the operational development. This may result in the enclosure of currently open views, however after the operational lifetime of the project, hedges could be reverted to lower heights to allow outward views over them if that is judged desirable.

2.17.14. Measures to ensure that new planting and management of existing vegetation meets the design intent throughout the operational life of the Proposed Development are secured via ES Appendix 2.14 Outline LEMP [APP-118]. In order to be effective as mitigation in terms of reducing effects, it is not necessary that planting entirely screen the development at all times of year. The LVIA was based on a conservative estimate of growth for new planting and took account of both seasonal variation and topography in considering the expected visibility with mitigation and the reporting of effects.

Specific matters raised

2.17.15. A number of Representations raised queries relating to the LVIA and their specific property. These are responded to below.

Examination Library Reference	Matter raised	RWE Response
RR-247, RR-248 and RR-367	These Representations state that the description for viewpoints 17 and 18 is inaccurate, questioning the assessment within the LVIA in relation to them.	Having carefully reviewed the points being made in these representations, it is not considered that either the description or assessment from these viewpoints is incorrect. It is the case that views from Great Stainton vary and that the two publicly accessible viewpoints (17 and 18) used do not reflect the views available from homes (which are considered and illustrated in Appendix 7.6 Residential Visual Amenity Assessment [APP-137]. For LVIA purposes, assessment viewpoints must be publicly accessible and located to best represent the receptors. The assessment of effects on Great Stainton takes account of all public views from the village in general and the limitations of the two viewpoints (such as the shed near viewpoint 17) have not affected the accuracy of the assessment.
RR-220 and RR-420	These Representations (pertaining to the same property) state that the Residential Visual Amenity Assessment [APP-137] incorrectly identifies their property and that the visual impact has not been correctly assessed.	These respondents are correct in identifying that the property name is accurately reported in the RVAA (Appendix 7.6 Residential Visual Amenity Assessment [APP-137] and is Harefield Grange (not Hawthorn House as reported in the RVAA). The householders also take issue with some of the property description and description of likely visibility. Two key points arise in relation to this. Firstly – the description of the front garden as being small relates specifically to its amenity use as opposed to the driveway and parking. The purpose of this description is to emphasise that the main amenity area is the large rear garden which faces towards the Site. Secondly, the point is accepted that the conclusion of 'limited visibility from the house' is ambiguous and may be misunderstood. The text should have more accurately stated 'limited visibility of the nearest parts of the Proposed Development'. The RVAA is focussed on the effects of development within 100m of properties (which is why for example the RVAA does not consider impacts arising from Panel Area C for this property). Panels to the east would be more than 200m distant, beyond multiple

Examination Library Reference	Matter raised	RWE Response
		layers of vegetation (both existing and proposed). Panels to the southeast would be obliquely seen to the left in views from south facing windows at distances of 130m (or more) from the house, though the existing hedges and topography mean that the visibility of the nearest panels would be limited (as illustrated by viewpoint 1 in the RVAA). It would be the panels in the next field to the southeast and those further to the south which would be more openly seen (at 300m or more from the house), but these would not give rise to effects that require detailed consideration in the RVAA.
RR-347	The Representation states that an access road will be visible from their property and no mitigation has been proposed for this.	The property is not within the RVAA study area, and any temporary views of traffic using the offroad access during construction would not be expected to give rise to visual impacts requiring mitigation.
RR-348	The Representation states the visual impact on their property, which is near to parts of the Proposed Development, has not been considered.	In the representation, the householder indicates that they live 'over the road' from the substation and that their neighbour is Carr House. Carr House is considered within the RVAA (Appendix 7.6 Residential Visual Amenity Assessment [APP-137]. From the description provided, it is assumed that this representation is from the property located south and across the road from Carr House, which is 200m from the nearest panel area to the east and beyond the 100m RVAA study area. Visual effects on residents in this part of the LVIA study area are assessed and identified as being significant within ES chapter 7 Landscape and Visual [APP-030].
RR-469	The Representation is concerned regarding the visibility of the substation from their property in Great Stainton village. The Representation considers that the photographs provided in ES Appendix 7.2 Illustrative Views [APP-133] are misleading, and that ES Figure 6.3.7.4 Environmental Statement Figure 7.4 Topography and Land Cover [APP-066]	As shown by ES Figure 7.8 Zone of Theoretical Visibility – Substation [APP-070], the substation is likely to be visible from some south facing properties at Great Stainton at distances of approximately 1.5km. ES Appendix 7.2 Illustrative Views [APP-133] provides images which are supplementary to the Visualisations [APP-071 – 074] and are included to "*demonstrate a particular effect or specific issues*" (GLVIA3, paragraph 6.19)

Examination Library Reference	Matter raised	RWE Response
	misrepresents how undulating the land is. are misleading. The Representation states that the ES Figure 7.8 Zone of Theoretical Visibility – Substation [APP-070] is inaccurate in indicating no visibility of the substation from Carr House.	and/or by agreement with Darlington Borough Council. Impacts on Carr House are discussed in relation to RR-510 below.
RR-510	The Representation states that the visual impact on their property (Carr House) of Panel Area C and the substation located nearby has not been correctly assessed.	The point is accepted that the description of Carr House as being 'unlikely to have views' of the solar panels is ambiguous and may be misunderstood. As described above in relation to RR-220 and RR-240, the RVAA [APP-137] is focussed on development within 100m of the property. In the case of Carr House, this would lie to the west, and the description should have said that views to the west (not east) from the house and garden are screened by outbuildings and garden vegetation. More distant views of solar panels to the northwest within area C and north within Area D would be likely to be from the north facing facade of the house (at distances of around 370m or more) but would not give rise to effects that require detailed consideration within the RVAA. The substation would be visually screened from Carr House by intervening higher ground, and the proposed solar panels on that higher ground, as illustrated by ES Figure 7.8 Zone of Theoretical Visibility - Substation [APP-070].

2.18. Lighting

Summary of matters raised in Relevant Representations

2.18.1. Some Relevant Representations noted concern regarding light pollution from the Proposed Development during operation.

RWE response

2.18.2. As set out in ES Chapter 2 The Proposed Development [APP-025], there is no permanent lighting proposed as part of the Proposed Development, except for the

localised emergency security lighting in proximity to the substation and energy storage systems. Such lighting would be triggered by movement only or manually turned on, and so would not be active for all hours of darkness. CCTV to be installed along the security fencing associated with the onsite substation and energy storage system would utilise infrared technology.

2.18.3. During the construction and decommissioning phases of the Proposed Development, it is envisaged that artificial lighting may be required to facilitate construction areas where there is limited natural light and during core working hours within winter months. The use of artificial lighting will be controlled by the Outline CEMP [APP-110], adopting the necessary mitigation hierarchy to protect ecological and residential receptors.

2.19. Noise

Summary of matters raised in Relevant Representations

2.19.1. Some Relevant Representations stated their concern relating to noise pollution during operation of the Proposed Development. Several Representations raised this concern in relation to their own property and their potential to experience noise.

RWE response

2.19.2. ES Chapter 11 Noise and Vibration [APP-034] provides an assessment of potential noise effects of the Proposed Development. The assessment identifies that the main sources of noise would be construction activities and related traffic during the construction and decommissioning phases, and road traffic and supporting infrastructure (such as BESS, inverters, the on-site substation) during the operational phase. It concludes a significant adverse effect would arise during construction and decommissioning activities, however this would be short-term and reversible. No significant effects are identified during the operation of the Proposed Development.

2.19.3. The noise from the Proposed Development has been modelled using noise software which takes into account, noise sources levels, frequencies, land topography and ground absorption and all other known contributing factors which affect how noise travels. The assessment has therefore been undertaken as accurately as possible and with regard to relevant guidance. Importantly, it has also taken account of and been assessed under the worst possible case scenario as reflected in the Environmental Statement Figures 2.2 – 2.8 General Arrangement Plan [APP-040 – APP-046], submitted with the application.

2.19.4. Noise and vibration impacts during operation have been mitigated through design measures, with noise sources located as far as reasonably possible to a minimum of 300m from existing sensitive receptors, within the design, to minimise potential noise levels at the receptors. The inverters will also be housed within containers which will further reduce the noise levels at source. Such design principles, which are outlined in the Design Approach Document [AS-004] are secured via requirement 3 of the DCO [APP-012]. Additionally, the Applicant is committed to further exploring alternative

piling techniques in specific areas across the Proposed Development whereby the noise effects are considered detrimental, such as in the vicinity of liveries.

2.20. Operation and maintenance

Summary of matters raised in Relevant Representations

2.20.1. Some Relevant Representations queried the suggestion that animals may graze in the Panel Areas during operation.

2.20.2. Concerns were raised regarding maintenance and cleaning of the solar panels, with some Representations stating that this would be costly and time consuming, and so may not be done. There were also concerns that panels damaged in stormy weather would not be fixed.

RWE response

2.20.3. The DCO application includes a number of management plans which would be secured via the DCO and which set out how the Applicant would maintain aspects of the Proposed Development. This includes the Outline Pollution and Spillage Response Plan, the Outline Battery Fire Safety Management Plan (BFSMP), the Outline Landscape and Ecological Management Plan (LEMP) and the Outline Public Rights of Way (PRoW) Management Plan. The Applicant would also maintain the equipment, with access for maintenance included in the proposals. Livestock such as sheep are able to graze amongst solar panels and this approach is used in many operational sites. Recognising this, the Outline LEMP includes management measures relating to grazing, such as avoiding grazing in biodiversity enhancement areas during bird nesting season.

2.21. Principle of development

Summary of matters raised in Relevant Representations

Principle of solar energy development

2.21.1. Some Representations objected to the principle of solar energy generation, stating reasons such as it is inefficient, not environmentally friendly, and that the costs are too high. Some Relevant Representations stated that there is a high degree of opposition to the Proposed Development. There were concerns that the energy generated would not be used in the local area.

2.21.2. One Representation stated that the Proposed Development would only provide enough energy for 42,000 homes, rather than 70,000 as stated in the application.

2.21.3. Some Representations noted that the Applicant is a German company and objected to this. There were also claims that the Proposed Development is profit motivated and is taking advantage of Government subsidies. Some Relevant Representations stated that the costs of appealing planning decisions are prohibitive, giving developers an advantage.

Policy accordance

2.21.4. Some Representations stated that national policy does not support solar energy generation being sited on agricultural land, and that the Proposed Development is not in accordance with national policy to protect the environment.

2.21.5. Some Representations also stated that the Proposed Development is not in accordance with national policy to regarding good design.

RWE response

2.21.6. The UK has made a legally binding commitment to achieve net zero carbon emissions by 2050. This can only be achieved with the roll-out of reliable, affordable, clean energy sources such as solar. Solar farms, such as Byers Gill Solar, would make a meaningful contribution to local and national climate commitments, reducing our impact on the environment and contributing to energy security.

2.21.7. Chapter 3 of the Planning Statement [APP-163] provides a summary of the need for the Proposed Development as recognised in the NPS and which informs the presumption in favour of granting consent. As confirmed through NPS EN-1, the Proposed Development would constitute nationally significant low carbon infrastructure for which there is a Critical National Priority (CNP). The Proposed Development would respond to the CNP and contribute to delivery of the Government's net zero ambitions by generating 180MW of electricity, enough to power the equivalent of 70,000 homes.

2.21.8. As identified in Section 2.4.5 of this document paragraphs 3.2.6 to 3.2.8 of NPS EN-1 establish the significant weighting that should be applied to the need case when an application which falls within the parameters of CNP infrastructure. Substantial positive weight was also given by the Secretary of State for Energy Security and Net Zero in his recent decision letters giving consent tor the Gate Burton DCO (in paragraph 4.61), Sunnica DCO (in paragraph 4.17) and Mallard Pass DCO (in paragraph 4.22), with regard to the contributions of these projects to the provision of solar energy generation, and so the need for these developments.

2.21.9. The Planning Statement [APP-163] sets out the overall compliance of the Proposed Development with relevant planning policy, taking into account its impacts and benefits, and the CNP for low carbon infrastructure. It identifies that the effects of the Proposed Development are assessed in the ES provided with the DCO application, in which the mitigation hierarchy has been applied to address potential adverse effects. The limited residual effects of the Proposed Development, as summarised in ES Chapter 14 Summary [APP-037], are considered to be outweighed by the CNP and overall needs case for the Proposed Development, as well as the wider enhancements it would deliver.

2.22. Scale of the Proposed Development

Summary of matters raised in Relevant Representations

2.22.1. Some Relevant Representations stated that the Proposed Development is too large.

RWE response

2.22.2. ES Chapter 3 Alternatives and Design Iteration [APP-026] provides an account of the alternatives that have been studied by the Applicant in developing the siting and design of the Proposed Development. It sets out the main reasons for the Applicant's choices, including for the site layout and the scale of the Proposed Development, taking into account environmental, social and economic effects as well as technical and commercial feasibility. The Design Approach Document [AS-004] additionally provides a detailed account of the approach to design, taking into account the existing landscape context and any technical constraints relating to the construction and operation of the required infrastructure.

2.22.3. Through ongoing engagement with landowners and as a result of feedback received during the statutory consultation, the overall size of the Proposed Development was reduced from 563 hectares to 490 hectares. Solar energy production at this scale is supported by National Policy Statement EN-3 which identifies solar energy production as Critical National Infrastructure. As identified in Section 2.4.5 of this document, paragraphs 3.2.6 to 3.2.8 of NPS EN-1 establish the significant weighting that should be applied to the need case when an application which falls within the parameters of CNP infrastructure.

2.22.4. The scale of the proposed development is defined by the capacity available on the National Grid. The Applicant has an agreement with Northern Power Grid to supply 180MW of electricity from solar power to the Norton Substation. The area of land proposed is required to produce this generating capacity.

2.23. Socioeconomic and community impacts

Summary of matters raised in Relevant Representations

Community benefits

2.23.1. There were general claims that local residents would not benefit as a result of the Proposed Development, with specific criticisms that local residents would not receive free electricity. Some Representations stated that visitors would no longer visit the area as a result of the Proposed Development, damaging the local economy.

Public rights of way and recreation

2.23.2. Some Representations stated that the fencing associated with Proposed Development would have a tunnelling effect on PRoWs, and that the character of these PRoWs would be changed. There was also concern regarding the use of PRoWs for

construction access. One Representation stated that more PRoW were included in the consultation documents than are in the documents submitted as part of the DCO application.

2.23.3. Some Relevant Representations stated that there would be a loss of leisure amenity as a result of the Proposed Development, in particular with regards to Mill Lane.

2.23.4. Some Representations were critical of the proposed amenity areas and stated that they would not be used (i.e. because access is unsafe) and would not sufficiently mitigate the negative effects of the Proposed Development. It was also stated that there would be a negative impact on the recreation area in Bishopton as the view would change to be one of solar panels.

Impacts on Bishopton Redmarshall Primary School

2.23.5. Some Representations expressed their concerns regarding negative impacts on Bishopton Redmarshall Primary School, including that the school would close as a result of people leaving the area. It was also stated that Panel Area F and the BESS is too close to the school.

RWE response

Community benefits

2.23.6. ES Chapter 9 Land Use and Socioeconomics [APP-032] provides an assessment of the Proposed Development in relation to its socioeconomic effects. This includes consideration of construction employment, effects on community facilities, the development of low carbon industries and the delivery of community benefits through the Proposed Development.

2.23.7. ES Chapter 9 Land Use and Socioeconomics [APP-032] considers opportunities for local supply chains during construction, for example ground works and the supply of materials are likely to be sourced locally. The assessment concludes that there would be a beneficial (not significant) effect arising from the Proposed Development in relation to employment and supply chain opportunities. ES Chapter 9 Land Use and Socioeconomics [APP-032] identifies the legacy benefits of the Proposed Development such as the provision of a £1.5m Community Benefit Fund; although it is recognised that the Community Benefit Fund cannot be taken into account as part of the overall planning balance to be considered by the decision-maker.

2.23.8. As established in the Design Approach Document [AS-004], the Proposed Development would provide beneficial effects both locally and nationally, including but not limited to:

- the displacement of over 4m tonnes of CO2 from equivalent fossil fuel energy, which equates to taking approximately 101,000 cars off the road for a year;

- approximately 7km of new and enhanced hedgerows, 59 hectares of planting and seeding between panel areas, 24 hectares of community picnic areas and orchards, 3 hectares of new trees and 29 hectares of biodiversity enhancement areas;
- allocating two large fields in the Order Limits solely for habitat enhancement, which will be sown without fertiliser to help lower nutrients in the soil, and will be retained during the 40-year duration of the Proposed Development specifically for ground nesting birds;
- providing an anticipated 87% net gain of in area habitat Biodiversity Units (BUs) and a 108% net gain of hedgerow BUs;
- providing approximately 3600m of permissive paths to be implemented during the construction stage, enhancing the local public right of way network;
- interpretation boards to be provided at points of local interest along the public right of way network;
- the provision of a community orchard in Bishopton;
- the provision of a sensory garden and car park for the Bishopton Redmarshall Primary School; and
- £27m generated in business rates over the lifetime of the Proposed Development, alongside approximately 200 jobs during construction.

Public rights of way and recreation

2.23.9. The impact, mitigation and enhancement of the PRoW network affected by the Proposed Development is considered in ES Chapter 9 Land use and Socioeconomics [APP-032]. It concludes that there would be a minor, not significant, adverse effect during construction and decommissioning due to closure or extinguishment of existing PRoW.

2.23.10. The Applicant has proposed an additional approximate 3,600m of permissive paths in order to create an enhanced and better-connected network in the local area. It is proposed that these permissive routes are provided during the construction phase of the Proposed Development, to minimise impact and result in a reduced need for temporary diversions to allow for construction activities. As set out in the Outline Public Rights of Way Management Plan [APP-119], details and specifications of access features/means of enclosure and signage would be agreed between the Applicant and DBC prior to implementation.

2.23.11. ES Chapter 7 Landscape and Visual [APP-030] considers impacts of the Proposed Development on users of PRoW. It identifies that there would be a significant effect relating to views from four stretches of PRoW within 1km of the Proposed Development.

Impacts on Bishopton Redmarshall Primary School

2.23.12. ES Chapter 9 Land use and Socioeconomics [APP-032] Considers the effects of the Proposed Development on community facilities including Bishopton Redmarshall Primary School. It concludes that there would be no significant effects arising as a result of the Proposed Development.

2.24. Traffic and transport

Summary of matters raised in Relevant Representations

2.24.1. Some Relevant Representations raised concern about the impact of the Proposed Development on traffic during both construction and operation, including in relation to increased traffic impacting on the local area and villages; reduced road safety (in particular by Bishopton and Redmarshall Primary School); damage to local roads and properties; and reduced resident access and parking.

2.24.2. Lime Lane and Lodge Lane were described as being in poor condition, with Representations noting that they are proposed to be used as HGV routes. The road alongside the Whinfield Solar Farm was also identified as being in poor condition.

2.24.3. Some Representations stated that the size of the local roads limits emergency service access, and that this was of concern given the perceived fire risk of the Proposed Development.

RWE response

2.24.4. The Applicant will seek to minimise disruption as much as possible during the construction, operational and decommissioning stages.

2.24.5. The Applicant has prepared an Outline Construction Traffic Management Plan (CTMP) [APP-112] which details how the construction of the Proposed Development on the environment, local road network and local communities will be managed. The CTMP will be updated throughout all stages of the Proposed Development by an appointed contractor at the appropriate times. It is secured via requirement of the draft DCO [APP-012].

2.24.6. ES Appendix 12.1 Transport Statement [APP-159] identifies that staff trips will be mainly made by minibuses, while deliveries of construction materials and plant will mainly be made by HGVs. During the construction phase, it is expected that there would be approximately 45 staff trips per day made by minibuses and an average of 6 HGV deliveries per Panel Area (12 two-way movements).

2.24.7. ES Figure 2.21 Construction Compounds and Access Routes [APP-059] depicts the identified vehicular access routes for construction of the Proposed Development. HGV trips will be advised to follow the designated routes as identified in ES Appendix 2.8 Outline CTMP [APP-112] in order to avoid weight restrictions and villages where possible. Measures to encourage adherence to these routes are also detailed in the Outline CTMP.

2.24.8. The assessment reported in ES Chapter 12 Traffic and Transport [APP-035] concludes that during the construction phase there would be no significant effects arising from the Proposed Development in relation to traffic and transport.

2.24.9. In relation to operational effects, the access tracks required for maintenance during operation are depicted on the Works Plans [AS-013] and the General Arrangement Plans [APP-040 – 046]. ES Chapter 12 Traffic and Transport [APP-035] reports that during operation, the Proposed Development is expected to produce a negligible amount of additional traffic (one trip per month), resulting in no significant effects or a requirement for mitigation.

2.24.10. Whilst the Applicant acknowledges concerns raised regarding existing road conditions, this is not a matter within the control of the Applicant and is the responsibility of the relevant highway authority.

Specific matters raised

Table 2-6 Specific matters raised in relation to traffic and transport

Examination Library Reference	Matter raised	RWE Response
RR-114	The tall hedgerows proposed to be planted on Mill Lane will make the road dangerous.	The Applicant acknowledges the concern raised regarding the existing visibility on Mill Lane. Whilst new planting is not proposed, the management of the existing hedgerow is proposed to increase its height to reduce visual effects on Bishopton village. However on review of this concern, the Applicant intends to discuss the proposed planting and highway visibility with the local highway authority as part of the Statement of Common Ground process.
RR-175	The Representation queries whether there has been any consultation with the other solar schemes in the area, noting that the local road network could be impacts for 5 to 10 years. The Representation also questions the traffic estimates, stating that these are often underestimated.	As set out in ES Chapter 12 Traffic and Transport [APP-035], the traffic analysis undertaken for the Proposed Development has assessed the cumulative impact of nearby developments for traffic and transport by including trips associated with the other schemes in the future baseline assessment. As such these are intrinsic to the traffic and transport assessment and reported as part of the potential effects of the Proposed Development in that chapter. It concludes there would be no significant effects arising from the Proposed Development in relation to traffic and transport. RWE would seek to engage, via the community liaison officer (to be secured via Requirement 4 of the dDCO), with other developers as

Examination Library Reference	Matter raised	RWE Response
		far as is practicable should it be granted development consent.
RR-211	The Representation questions the adequacy of the Outline Construction Traffic Management Plan (APP-112), providing detailed comments on its contents.	The Construction Traffic Management Plan (CTMP) [APP-112] has been produced in outline to enable it to be updated following the appointment of the Principal Contractor – at that point the CTMP would be updated, and the highway authorities have asked to be engaged in the development of the detailed CTMP. The outline CTMP establishes the principles of traffic vehicle routing (to avoid restricted routes and villages) and makes recommendations for managing the impact of construction traffic. Two deliveries of abnormal loads are expected to be required to deliver to Panel Area C – it will be the responsibility of the operator transporting the abnormal load to notify the authorities following the Department for Transport (DfT) requirements. It is important to note that there, based on the proposed and anticipated route presented within the application, there are no impediments separate to the DfT process and requirements.
RR-423	The Representation states that Bishopton Parish Council have submitted a road survey report which details the poor condition of the local road network and serious road traffic incidents.	Whilst the Applicant acknowledges concerns raised regarding existing road conditions, this not a matter within the control of the Applicant and is the responsibility of the relevant highways' authority where relating to adopted roads. Additionally, it is for the local highway authority to confirm its consideration of the aforementioned road survey report, as confirmed under action number 7 within the Preliminary Meeting Action Points [EV2-006].

3. Response to Relevant Representations made by Statutory Parties

3.1. Overview

3.1.1. This chapter sets out the Applicant's response to Relevant Representations made by Statutory Parties. Statutory Parties are defined in the Infrastructure Planning (Interested Parties and Miscellaneous Prescribed Provisions) Regulations 2015.

3.1.2. The Applicant has been engaged in discussions with several of the Statutory Parties during the pre-application period, including the production of a Principal Areas of Disagreement Statement (PADS) as reflected in the Potential Main Issues for Examination (PMIE) [APP-169] submitted at time of DCO application. Furthermore, it is recognised that the ExA requested Statements of Common Ground (SoCGs) with a number of Statutory Parties in the Rule 6 Letter [PD-003] issued on 25 June 2025.

3.1.3. Some of the matters raised by Statutory Parties are reflected in the common themes responded to in Chapter 2 of this document and are not repeated in this Chapter to avoid repetition. This Chapter therefore focuses on matters raised by Statutory Parties that require a specific response or for which the Applicant can provide an update to the ExA relating to engagement carried out since the submission of Relevant Representations, such as on the production of SoCGs.

3.2. RWE response to Relevant Representations submitted by Statutory Parties

Table 3-1 RWE response to Relevant Representations submitted by Statutory Parties

Examination Library Reference	Interested Party	RWE Response
RR-144	Durham County Council (DCC)	As reflected in the PMIE [APP-169], the Applicant has engaged with DCC regularly during the pre-application period and at time of DCO application, no principal points of disagreement were identified. The Applicant notes that DCC's Relevant Representation defers detailed comments to its Local Impact Report (LIR) and identifies the topics to be commented upon. The Applicant is therefore unable to provide detailed comments on the DCC Relevant Representation at this time. It is acknowledged that the ExA has requested an SoCG between the Applicant and DCC via the Rule 6 letter [PD-003]. The Applicant has produced an SoCG reflecting the position at time of DCO application and this has been shared with DCC on 18 July 2024. It is provided at Deadline 1 (Document Reference 8.4.1).

Examination Library Reference	Interested Party	RWE Response
RR-107	Darlington Borough Council (DBC)	As reflected in the PMIE [APP-169], the Applicant has engaged with DBC regularly during the pre-application period and at time of DCO application, a PADS was submitted. This set out that the principal areas of disagreement between DBC and the Applicant related to landscape and visual matters; PROW; access and transport; and glint and glare. Since submission of the DCO application, the Applicant has regularly sought to engage with DBC in relation to the above matters and is awaiting information from DBC in order to progress discussions on the landscape and visual matters. The Applicant has not received a response to several requests for meetings or written responses made since DCO application. The Applicant notes that DBC's Relevant Representation defers detailed comments to its Local Impact Report (LIR) and identifies the topics to be commented upon. The Applicant is therefore unable to provide detailed comments on the DBC Relevant Representation at this time. It is acknowledged that the ExA has requested an SoCG between the Applicant and DBC via the Rule 6 letter [PD-003]. The Applicant has produced an SoCG reflecting the position at time of DCO application and this has been shared with DBC on 18 July 2024, and will be submitted into the Examination at a future Deadline.
RR-498	Stockton-on-Tees Borough Council (STBC)	As reflected in the PMIE [APP-169], the Applicant has engaged with SBC regularly during the pre-application period and at time of DCO application, no principal points of disagreement were identified. The Applicant notes that SBC's Relevant Representation defers detailed comments to its Local Impact Report (LIR) and identifies the topics to be commented upon. The Applicant is therefore unable to provide detailed comments on the SBC Relevant Representation at this time. It is acknowledged that the ExA has requested an SoCG between the Applicant and STBC via the Rule 6 letter [PD-003]. The Applicant has produced an SoCG reflecting the position at time of DCO application and this has been shared with SBC on 18 July 2024. It is provided at Deadline 1 (Document Reference 8.4.3).
RR-513	Tees Valley Combined Authority (TVCA)	As stated in the Consultation Report Appendices Part 4 of 4 [APP-021, Page 40, Row ID 122], the Applicant has engaged with TCVA regarding the proposed Northern Link Road and the potential for the preferred route to conflict with the Proposed Development. The last meeting with TCVA was held on 1 December 2023, in which the potential interaction between the Proposed

Examination Library Reference	Interested Party	RWE Response
		Development and a developing preferred route for the Northern Link Road proposals, the TCVA was discussed. It is acknowledged that the ExA has requested an SoCG between the Applicant and TVCA via the Rule 6 letter [PD-003]. The Applicant has produced an SoCG which has been shared with TVCA on 18 July 2024, and will be submitted into the Examination at a future Deadline.
RR-207	Historic England (HE)	As reflected in the PMIE [APP-169], the Applicant has engaged with HE regularly during the pre-application period and at time of DCO application, there was one matter identified for further discussion following the HE's receipt and review of the full application. As raised by HE in its Relevant Representation, this matter relates to the assessment of effects on Bishopton Conservation Area due to rerouting of the public footpath from Old Stillington. HE considers the resulting effect to be minor rather than negligible as concluded by the Applicant, however HE agrees that the overall magnitude of change is not significant in EIA terms. The Applicant and HE have been in discussions on this matter since the submission of the Relevant Representation, and this is reflected in an SoCG between the Applicant and HE as requested via the Rule 6 letter [PD-003]. The SoCG is provided at Deadline 1 (Document Reference 8.4.5).
RR-526	UK Health Security Agency (UK HSA)	It is acknowledged by the Applicant that UK HSA is satisfied that previous comments made in June 2023 have been addressed and is satisfied with the EIA and its conclusions regarding public health, namely that the Proposed Development would not result in any significant adverse effects on public health.
RR-168	Environment Agency (EA)	As reflected in the PMIE [APP-169], the Applicant has engaged with EA regularly during the pre-application period and at time of DCO application, no principal points of disagreement were identified. It is acknowledged that upon review of the full application, the EA identified a number of matters for requiring further discussion or clarification. The Applicant met with the EA on 12 June 2024 to discuss the Relevant Representation. The position on these matters since that meeting is reflected in the SoCG with the EA, which will be submitted into the Examination at a future Deadline.
RR-373	Natural England (NE)	As reflected in the PMIE [APP-169], the Applicant has engaged with NE regularly during the pre-application period and at time of DCO application, no principal points of disagreement were identified. This position is reflected in the Relevant Representation from NE which concludes that NE is 'satisfied with the proposals and considers that there are no significant matters to resolve'. The Applicant will continue to engage with

Examination Library Reference	Interested Party	RWE Response
		NE as necessary during the Examination and into delivery and operation, should the Proposed Development receive consent.
AS-009	National Highways (NH)	National Highways provided initial comments to the Applicant on 2 May 2024, in advance of the Relevant Representation deadline, via document TM002 dated 28 March 2024, and which is submitted the NH Relevant Representation. The Applicant responded to this on 14 May 2024. On 28 May 2024, NH acknowledged the RWE response and confirmed that NH accept all points are resolved subject to the secured production of a detailed Construction Traffic Management Plan (CTMP) and Decommissioning Traffic Management Plan (DTMP), upon which NH is to be consulted. It is acknowledged that the ExA has requested an SoCG between the Applicant and NH via the Rule 6 letter [PD-003]. A signed copy of the SoCG between the Applicant and NH has been provided at Deadline 1 (Document Reference 8.4.7).
RR-052	Bishopton Parish Council	The Applicant acknowledges that Bishopton Parish Council expresses support in its Relevant Representation to the Bishopton Villages Action Group (BVAG) which has submitted a separate Relevant Representation [RR-548]. As reported Chapter 8 of the Consultation Report [APP-017], the Applicant has engaged with Bishopton Parish Council and BVAG during the preapplication period through both statutory consultation and additional non-statutory engagement. This includes meeting in December 2023, prior to the DCO application submission. It is acknowledged that BVAG and the Parish Council remain in objection to the Proposed Development. The Applicant acknowledges the request from the ExA via the Rule 6 Letter to enter into an SoCG with Bishopton Parish Council. Following publication of the publication of the Preliminary Meeting Action Points [EV2-006] by the ExA, the Applicant has prepared and shared a draft SoCG with the Parish Council on 25 July 2024, which is provided at Deadline 1 (Document Reference 8.4.9).
RR-436	Redmarshall Parish Council	The Applicant considers that the points raised by Redmarshall Parish Council are reflected in the comments summarised and responded to in Chapter 2 of this document. As reported Chapter 8 of the Consultation Report [APP-017], the Applicant has engaged with Redmarshall Parish Council during the preapplication period through both statutory consultation and additional non-statutory engagement. This includes meeting in December 2023, prior to the DCO

Examination Library Reference	Interested Party	RWE Response
		application submission. It is acknowledged that the Parish Council remains in objection to the Proposed Development. It is acknowledged that the ExA has requested an SOCG between the Applicant and Redmarshall Parish Council via the Rule 6 letter [PD-003]. The Applicant has produced an SoCG which has been shared with the Parish Council on 18 July 2024. It is provided at Deadline 1 (Document Reference 8.4.10).
RR-199	Great Stainton Parish Meeting	The Applicant considers that the points raised by Great Stainton Parish Meeting are reflected in the comments summarised and responded to in Chapter 2 of this document. As reported Chapter 8 of the Consultation Report [APP-017], the Applicant has engaged with Great Stainton Parish Meeting during the preapplication period through both statutory consultation and additional non-statutory engagement. This includes meeting in December 2023, prior to the DCO application submission. It is acknowledged that the Parish Council remains in objection to the Proposed Development. It is acknowledged that the ExA has requested an SOCG between the Applicant and Great Stainton Parish Meeting via the Rule 6 letter [PD-003]. The Applicant has produced an SoCG which has been shared with the Parish Meeting on 18 July 2024, which will be submitted into the Examination at a future Deadline.
RR-497	Stillington and Whitton Parish Council	The Applicant acknowledges the concerns raised by Stillington and Whitton Parish Council regarding traffic and HGVs. This was not a matter that was raised by the Parish Council in its response to statutory consultation; see Consultation Report Appendices Part 4 of 4 [APP-021, Page 12, Row ID 30]. However, in response to the Relevant Representation, the Applicant has contacted the Parish Council to arrange a meeting to discuss concerns regarding traffic. It is acknowledged that the ExA has requested an SOCG between the Applicant and Stillington and Whitton Parish Council via the Rule 6 letter [PD-003]. The Applicant has produced an SoCG which has been shared with the Parish Council on 18 July 2024. It is provided at Deadline 1 (Document Reference 8.4.12).
RR-536	Northern Powergrid	The Applicant acknowledges the comments of Northern Powergrid regarding the interaction of the Proposed Development and its assets and land interests. As noted in the Relevant Representation, the Applicant is in discussion with Northern Powergrid regarding these concerns and the contents of the protective provisions contained in the draft DCO. The Statutory Undertakers Position Schedule (Document Reference

Examination Library Reference	Interested Party	RWE Response
		7.7, Revision 2) provides an updated position and will be updated further as relevant during the Examination. The Applicant acknowledges the request from the ExA via the Rule 6 Letter to enter into an SoCG with Northern Powergrid. However, as stated in the Applicant's response to Procedural Deadline A [PDA-001], the Applicant considers that the Statutory Undertakers Position Schedule [APP-170] provides a sufficient summary of the position of the respective parties, which would be duplicated unnecessarily in a SoCG. Furthermore, the Applicant notes action point 11 in the ExA's published Issue Specific Hearing 1 Action points [EV3-005] which requests that the Applicant engages with Northern Powergrid and provides an update at Deadline 2. This update is provided at Deadline 1.
RR-174	National Gas Transmission Ltd	The Applicant acknowledges the comments of National Gas Transmission Ltd regarding the interaction of the Proposed Development and its assets and land interests. As noted in the Relevant Representation, the Applicant is in discussion with National Gas Transmission Ltd regarding these concerns and the contents of the protective provisions contained in the draft DCO. The Statutory Undertakers Position Schedule (Document Reference 7.7, Revision 2) provides an updated position and will be updated further as relevant during the Examination. The Applicant acknowledges the request from the ExA via the Rule 6 Letter to enter into a SoCG with National Gas Transmission Ltd. However, as stated in the Applicant's response to Procedural Deadline A [PDA-001], the Applicant considers that the Statutory Undertakers Position Schedule [APP-170] provides a sufficient summary of the position of the respective parties, which would be duplicated unnecessarily in an SOCG. Furthermore, the Applicant anticipates that matters outstanding between the parties should be resolved early in the Examination.
RR-372	National Grid Electricity Transmission Plc	The Applicant acknowledges the comments of National Grid Electricity Transmission Plc regarding the interaction of the Proposed Development and its assets and land interests. As noted in the Relevant Representation, the Applicant is in discussion with National Grid Electricity Transmission Plc regarding these concerns and the contents of the protective provisions contained in the draft DCO. The Statutory Undertakers Position Schedule (Document Reference 7.7, Revision 2) provides an updated position and will be updated further as relevant during the Examination. The Applicant acknowledges the request from the ExA via the Rule 6 Letter to enter into a SoCG with National Grid

Examination Library Reference	Interested Party	RWE Response
		Electricity Transmission Plc. However, as stated in the Applicant's response to Procedural Deadline A [PDA-001], the Applicant considers that the Statutory Undertakers Position Schedule [APP-170] provides a sufficient summary of the position of the respective parties, which would be duplicated unnecessarily in a SoCG. Furthermore, the Applicant anticipates that matters outstanding between the parties should be resolved early in the Examination.
RR-374	Network Rail	The Applicant acknowledges the comments of Network Rail regarding the interaction of the Proposed Development and its assets and land interests, including railway bridges. As noted in the Relevant Representation, the Applicant is in discussion with Network Rail regarding these concerns and the contents of the protective provisions contained in the draft DCO. The Statutory Undertakers Position Schedule (Document Reference 7.7, Revision 2) provides an updated position and will be updated further as relevant during the Examination. The Applicant acknowledges the request from the ExA via the Rule 6 Letter to enter into a SoCG with Network Rail. However, as stated in the Applicant's response to Procedural Deadline A [PDA-001], the Applicant considers that the Statutory Undertakers Position Schedule [APP-170] provides a sufficient summary of the position of the respective parties, which would be duplicated unnecessarily in a SoCG. Furthermore, the Applicant anticipates that matters outstanding between the parties should be resolved early in the Examination.

A.1 Secretary of State for Energy Security and Net Zero's House of Commons Statement, 18 July 2024

Clean Energy Superpower Mission

Mr Speaker
Before I call the Secretary of State, I note that there is disappointment from the Opposition that the statement was not provided in time. The statement was not provided to my office in time either. I know we want to set off in the right way. I am sure that the officials will make note when they arrive that we need to make sure that statements are provided on time. That was meant to be four minutes past the hour. I am sure that the Secretary of State will want to ensure that it never happens again.

11:37:00

The Secretary of State for Energy Security and Net Zero (Edward Miliband)
With permission, I would like to make a statement about the Government's mission to make Britain a clean energy superpower. This Government were elected two weeks ago. Since then, we have lifted the onshore wind ban in England, which had been in place since 2015; consented more than 1.3 GW of solar projects, powering the equivalent of almost 400,000 homes; established the 2030 mission control centre in my Department under Chris Stark to plan and deliver our mission; and established under the Chancellor a national wealth fund to create good clean energy jobs across our country. We are just getting started.

We are moving at this pace for one overriding reason: the urgency of the challenges we face. We have the challenge of our energy insecurity, laid bare by Putin's invasion of Ukraine and paid for by the British people in the worst cost of living crisis in generations. We have the challenge of an economy that does not work for working people, with too few good jobs at decent wages. We have the challenge of the climate crisis—not a future threat, but a present reality. This Government have a driving philosophy: homegrown clean energy can help us tackle all those challenges, including crucially energy security. Today the Climate Change Committee publishes its progress report to Parliament. I thank the interim chair Piers Forster and the interim chief executive James Richardson for their excellent work.

The Committee says in its report:

"British-based renewable energy is the cheapest and fastest way to reduce vulnerability to volatile global fossil fuel markets. The faster we get off fossil fuels, the more secure we become."

It is right. That is why making Britain a clean energy superpower is one of the five missions of this Government, delivering clean power by 2030 and accelerating to net zero across the economy.

Today, the committee's report also lays bare the truth about the last Government. Despite achievements, which I am happy to acknowledge, the report is coruscating about the lurch of recent years. It says that

"last year…the previous Government signalled a slowing of pace and reversed or delayed key policies."

It goes on:

"the…announcements were given with the justification that they will make the transition more affordable for people, but with no evidence backing this claim."

It concludes that

"the country is not on track"

to hit our 2030 international target of 68% emissions reductions. Indeed, it says:

“Our assessment is that only a third of the emissions reductions required...are currently covered by credible plans.”

That is our inheritance for a target to be achieved in just five years.

I will respond formally to the committee in the autumn and, as part of that, I have asked my Department to provide me with a thorough analysis of its findings, but I can tell the House today that we will hold fast to our 2030 clean power mission and our nationally determined contribution, because it is the right thing to do for our country.

Today, I set out our next steps. First, onshore wind is one of the cheapest sources of power that we have. To those in the House who claimed they were protecting communities with the onshore wind ban, let us be clear: they have undermined our energy security and set back the fight against the climate crisis. That is why in the first 72 hours of this Government we lifted the ban, which today I confirm formally to the House. Under the onshore wind ban, the pipeline of projects in England shrank by 90%.

Over a year ago, the last Government’s net zero tsar Chris Skidmore, whom I pay tribute to, made a recommendation of an onshore wind taskforce to drive forward projects. The last Government ignored it; we will implement it. The taskforce will work with developers to rebuild the pipeline of projects.

Secondly, solar power is among the cheapest forms of power that we have. My right hon. Friend the Deputy Prime Minister and I are determined that we have a rooftop revolution. We must use the rooftops of our country for solar far better than we do at the moment. That is why the Deputy Prime Minister and I are clear that rooftop solar should play an important role, where appropriate, as part of the future standards for homes and buildings. The solar road map—we have been waiting for it for 18 months—will be published soon, with greater ambition. I have reconvened the solar taskforce to deliver that objective.

As we face up to the challenge of the energy transition, we must also plan for how we use land in this country to ensure a proper balance between food security, nature preservation and clean energy. After dither and delay under the previous Government, the Environment, Food and Rural Affairs Secretary will publish a land use framework working in tandem with our spatial energy plan.

I also assure the House that communities will continue to have a say on any proposals in their area. It is important for this Government that where communities host clean energy infrastructure, they should directly benefit from it. But we will not carry on with a position where the clean energy we need does not get built and the British people pay the price.

Credible external estimates suggest that ground-mounted solar used just 0.1% of our land in 2022. The biggest threat to nature and food security and to our rural communities is not solar panels or onshore wind; it is the climate crisis, which threatens our best farmland, food production and the livelihoods of farmers. The Government will proceed not on the basis of myth and false information, but on evidence. Every time, the previous Government ducked, delayed and denied the difficult decisions needed for clean energy, that made us less secure, raised bills and undermined climate action. No more.

Thirdly, offshore wind will be the backbone of our clean energy mission. Allocation round 5, overseen by the last Government, was a catastrophe for the industry, with no offshore wind contracts awarded. The upcoming round is a critical test. We will get this crucial industry back on its feet. By the beginning of August, I will report back on the budget for AR6 to ensure that as much clean, home-grown energy as possible gets built while ensuring value for money.

Our fourth step is the Great British Energy Bill announced in the Gracious Speech. I am extremely proud that this is the first Bill for decades that will

enable us to establish a UK-wide publicly owned energy generation company. The truth is that there is already widespread public ownership of energy in Britain, but by foreign Governments. We have offshore wind farms in the UK owned by the Governments of Denmark, France, Norway and Sweden through state-owned companies. Those Governments know that a publicly owned national champion is part of a modern industrial strategy and generates a return for taxpayers, crowding in, not crowding out, private investment. For too long, Britain has opted out and lost out. Today, we say: no more.

Great British Energy, headquartered in Scotland, will invest in home-grown clean energy to increase our energy independence, create good jobs with strong trade unions and tackle the climate crisis. It will invest in technologies such as nuclear, offshore wind, tidal, hydrogen and carbon capture, and ensure a just transition for our oil and gas communities. GB Energy will also oversee the biggest expansion of community energy in British history through our local power plan. The Government believe in the ownership of British assets by the British people, for the benefit of the British people. Following the people's verdict at the general election, I hope that this is a patriotic mission that the whole House can get behind.

I have seen 19 years of debates on climate and energy in this House. The clean energy transition represents the biggest transformation of our economy for 200 years, and it is massively challenging. We have been at our best as a country, and as a House, when we have worked together for the sake of the national interest. I pay tribute to people of all parties who have been champions of this agenda over the past 14 years: Baroness May, who legislated for net zero; the right hon. Member for Kingston and Surbiton (Ed Davey), who oversaw the growth of offshore wind; Caroline Lucas; and on the Labour Benches, my friend Alan Whitehead.

One of my early decisions was to re-establish the role of the Secretary of State as the lead climate negotiator in my Department, because we can only protect future generations with strong action at home and leadership abroad. Next week in London I will host the President of this year's COP29 in Azerbaijan. He will be joined by the Presidents of COP28 and COP30. I have invited the President of COP 26, Lord Sharma, who presided with such distinction, to join our discussions. This is a sign of how I intend to go on—working with people of all parties and none in this national endeavour. That is what the British people have a right to expect of us. As the Prime Minister rightly says, "Country first, party second." That is more true on this issue than any other. This Government will act at pace and work with anyone who shares our mission. I commend this statement to the House.

Mr Speaker
I call the shadow Secretary of State.

11:46:00

Claire Coutinho (East Surrey) (Con)
I would like to put on the record my disappointment not to get the statement in good time. I know that the right hon. Gentleman will want to provide us with the same courtesy that we tried to provide him when we were in government. That being said, I congratulate him on his return to government. I was sad not to see more of him during the election campaign, particularly because our ability to secure enough cheap energy will be crucial to this nation's success in the decades ahead. I would also like to put on record my thanks to the officials he will now work with.

I wish the right hon. Gentleman well in his endeavour, but energy will be this Government's big test. They talk a good game on growth, but the Secretary of State's energy policy is their greatest liability. In government, we built more offshore wind than any other country bar China. We set out the largest expansion of nuclear power in 70 years. We said that, yes, we will need oil and gas in the decades ahead, as the Climate Change Committee has said, and we should use

British oil and gas where needed. We are in a global race for energy, and demand will be higher in the years ahead because of data and artificial intelligence.

If the right hon. Gentleman's plans to decarbonise the grid by 2030 are in place, we need to know what they will do to people's energy bills, our energy security and our reliance on the current dominant player for cables, batteries and critical minerals—China. He is happy to quote the Climate Change Committee, but it also acknowledged that we will need oil and gas well into 2050. He must answer: where would he like that to come from?

When it comes to quotes, he should consider some from the business world who have commented on his policy, such as the chief executive of Mitsubishi Power, who said that his plans would require a "huge sacrifice" by the country, citing the costs of the Secretary of State's approach. The chief executive of Ineos said that his approach to energy was "absurd", leaving us dependent on imports of foreign fuels with higher emissions and doing nothing for the climate. Even the GMB said that his plans were "unviable" and would lead to power cuts, blackouts and enormous cost. Unite has said that the Government's plans for the North sea would turn oil and gas workers into the coalminers of their generation.

The right hon. Gentleman must answer why he would like to import gas with much higher emissions. How many jobs will be lost from his plans? How much investment into the new technologies of the future, such as hydrogen, carbon capture and offshore wind, will be lost? Will he meet those workers and explain to them what will happen to their livelihoods?

During the election, the right hon. Gentleman claimed that he would lower bills and save families £300. However, those numbers are already in the savings, and no one on his side can set out the cost of his plans to decarbonise the grid by 2030. Who will pay for those network costs? What will they do to people's standing charges, which were already too high?

The right hon. Gentleman also, I think, commented on having a say in terms of communities. The energy infrastructure he will need, and the fact that he wants to go further and faster, will have a huge impact on rural communities. Their concerns must be addressed. As I set out, the plans for our energy cannot come at the expense of our food or national security.

In his statement, the right hon. Gentleman accused me of dither, but as he will know from his officials, in at least one of the cases he has signed off I had already instructed some time ago that I was minded to reject it, and that paperwork was being prepared. He must set out urgently what his criteria will be. In one case, he overturned an expert examining authority. In another case, he signed off a solar farm which will be 40% on our best and most versatile agricultural land. Did he know that was the case? If so, what was his basis for finding that acceptable? Will he continue our efforts to build more solar on rooftops? I think he mentioned that he would reconvene the solar taskforce. I hate to tell him, but it had never been disbanded and we were due to publish that work. So, I would like to know what date he will be able to publish that work.

In conclusion, the Secretary of State's party won the election and promised change, but he was not on show during that campaign to answer these critical questions of how he was going to provide that change and what it will mean for the country. What will his plans mean for the price of electricity? What will they mean for our ability to keep the lights on? What will they mean for struggling families' bills, for our economy, and for the livelihoods of oil and gas workers? What will they mean for our reliance on China? For all that the Labour Government talk about growth, they will not be able to deliver on that with the Secretary of State's plans for energy. I hope that in the months ahead he will set out some of that detail to be examined.

Edward Miliband

May I start by congratulating the right hon. Lady on her recent engagement? I wish her and her fiancé all the best for the future. We may disagree on some issues, but I believe this Government and the right hon. Lady can at least share a belief in long honeymoons. [Laughter.]

On the right hon. Lady's response, I have to say that I was disappointed. The lines were very, very familiar. That is because they were the lines she has used for the last year. And here she comes today to the House and repeats the lines as if the intervening meteorite has not hit the Conservative party: the worst election result in 200 years for her party. The truth, as sensible Conservatives know, is that the lurch she worked on a year ago with the former Prime Minister, the Leader of the Opposition, the right hon. Member for Richmond and Northallerton (Rishi Sunak), was an electoral disaster for the Conservative party—the lurch away from climate action. What we saw in her statement is the classic dilemma for the Conservative party, which we will see played out, I hope, for many long years of Opposition. The dilemma is do they go the Reform route to be climate deniers, or do they actually re-embrace climate—
[Interruption.]

Mr Speaker
Order. Can I just say that I do not need any advice? I will decide whether it is a question. It is an answer, actually.

Edward Miliband
On the points the right hon. Lady made, there is a fundamental issue, which is that unless we drive for clean energy—this is what the Climate Change Committee said; I strongly recommend that right hon. and hon. Members read it—we will end up energy insecure. We had the worst cost of living crisis in generations because of our exposure to fossil fuels, both domestically and internationally, set and sold on the world market. Unless we drive for clean energy, we will end up paying more for energy. The House would not know that from what she said about our 2030 target. She had a target when she was in government of 95% clean power by 2030. Of course, targets did not matter for the previous Government, because they were always miles away from reaching them.

As for the North sea, we set out our manifesto position, which is not to issue licences to explore new fields but to keep existing fields for their lifetime. Here is the truth of the conversation that we must have. The fate of North sea oil and gas communities is defined by these questions. Do we drive forward the clean energy of the future? Have we a plan for carbon capture and storage? Have we a plan for hydrogen? Have we a plan for offshore wind? The Conservatives had no such plans, so we will take no lectures on just transitions from them.

The right hon. Lady had other lines that were a rehearsal of the election. Let me say this to her, on the solar question. She referred to one particular planning decision, and I do think she has a degree of brass neck. She criticised me for overturning the planning authority. I am in a quasi-judicial role, so I will be careful about what I say, but she had this in her Department for a year. She could have agreed with the planning authority and rejected the application, but she chose not to do so. That is the reality.

In my experience, when you lose a general election a period of reflection is in order, and I say to Conservative Members that they need to reflect long and hard on the signals that they sent in this election. Their climate lurch was a disaster—a disaster for them electorally, but, much more important to me, a disaster for the country. Under this Government, Britain is back, open for business and climate leadership.

Bill Esterson (Sefton Central) (Lab)
It is great to see you back in the Chair, Mr Speaker. It is also great to see the Secretary of State at the Dispatch Box on this side of the House again. I welcome what he said about the jobs, lower bills, energy security and climate action that lie at the heart of this Government's plans. That is very true in respect of the Liverpool city region, where offshore wind—as he said—will play

an important and increasing role in our energy future, along with onshore wind, solar power, hydrogen, carbon capture and nuclear energy. However, we also have exciting plans for tidal energy in the region, and I hope he can confirm that it will form a part of what he wants to achieve through the plans that he has announced.

Edward Miliband
My hon. Friend has long been an eloquent advocate for the role that business can play in generating the clean energy of our future and generating prosperity. I can absolutely confirm that we want to embrace the widest range of technologies. Obviously we must ensure that that gives value for money, but what I always say on these occasions is that the climate crisis and the energy security challenge are so big for us as a country that we must embrace every form of technology at our disposal, because that is the only way in which we will succeed.

Mr Speaker
Order. May I just gently say that these exchanges must finish at 1 pm? I hope we can help each other along the way, but first I call the Liberal Democrat spokesperson.

Wera Hobhouse (Bath) (LD)
I welcome the new Secretary of State to his place. I share his passion for climate action. Let me add, however, that next time he makes a statement we will need our copies in better time than was the case today.

There is no doubt that the best route to affordable energy is renewables, but under the former Government renewable projects faced long delays and costs have skyrocketed. Indeed, that Government's record on renewables was absolutely miserable. Our electricity demand is expected to double by 2050, and we must make upgrading our grid infrastructure a major priority. The Government will know that one of the biggest challenges will be to bring communities behind hosting the big infrastructure changes needed for the grid expansion, and to cope with the huge landscape transformation. How will they secure public consent?

As the Secretary of State said, to achieve our legally binding targets we also need a "rooftop solar revolution", which will include introducing stronger incentives for households to install solar panels and ensuring a fair price for energy that they sell back to the grid. Will the Government work on those incentives with the Liberal Democrats?

We Liberal Democrats acknowledge the new approach taken by this new Government, and I look forward to working constructively with the Secretary of State to achieve our very ambitious targets.

Edward Miliband
May I welcome you to the Chair, Madam Deputy Speaker?

I welcome the hon. Lady's questions; we worked together on these issues when we were in opposition. Let me deal with her two substantive points. On the question of public consent, this is absolutely something that we need to do, and I see it in three ways. First, communities need a say. Secondly, communities need benefit. Communities are providing a service to the country when they host clean energy infrastructure, so there needs to be benefit for those communities. Thirdly, this is a debate that we will have to have, and I am afraid the last Government did not grasp the nettle on this issue.

We are going through a massive change in our economy. If we do not build the grid or roll out solar, we will be poorer as a country and we will absolutely expose ourselves to future cost of living crises. I look forward to receiving as much support as possible from the Liberal Democrats, and indeed from all Members of this House, in making the case to people. We have to go out and make the case, as I think happened in the 1950s when we will built the grid. If we do not make the case, we will leave ourselves exposed as a country, and it is the

British people who will pay the price. I completely concur with the hon. Lady on rooftop solar.

Mr Clive Betts (Sheffield South East) (Lab)
I welcome my right hon. Friend back to his position on the Front Bench, and I particularly welcome his reference to hydrogen. I know he has been to visit ITM Power in my constituency. When will an announcement be made about the chosen two technologies to pursue with small modular reactors? Will he give an assurance that whichever firms are picked, they will have to ensure that a very high percentage of the SMRs are built in this country by UK firms, such as Sheffield Forgemasters in my constituency? That will create well-paid jobs as well as clean energy.

Edward Miliband
I definitely concur with what my hon. Friend says about ITM Power—an incredibly impressive company that I have visited. I also concur with him on the SMR programme. Our manifesto made it clear that we support new nuclear, including at Sizewell, and we also support the SMR programme. Part of our challenge is to examine the legacy left to us by the last Government, but he should be in no doubt about my absolute support for the SMR programme. It is important, and we will strive to keep to the timetable set out.

Dame Harriett Baldwin (West Worcestershire) (Con)
I welcome the Secretary of State to his role, but he has been quite political in his replies. I gently point out that in West Worcestershire, fewer people voted Labour in this election than in the last election or the one before. I wonder whether he has ever visited the beautiful landscapes of West Worcestershire. The Malvern hills and Bredon hill are some of the most treasured landscapes in our land. What parameters is he going to put around the building of pylons, wind farms and solar farms across that beautiful landscape?

Edward Miliband
I thank the hon. Lady for her question. As with any planning decisions, there are clear parameters in the legislation on the consultation that needs to take place with local communities. I gently point out to her that, nine years ago, the last Government banned onshore wind in England for some of the reasons that she set out. I thought that was a mistake at the time, and it turned out to be even more of a mistake than I thought, because it exposed us to energy insecurity. We have to make judgments as Members of this House. Given the scale of the climate crisis, the energy insecurity and the energy security threat that we face, do we believe that we need to build infrastructure? I happen to believe that we do—yes, with community consent; yes, with community benefit; and yes, with the planning rules that I have set out.

Martin McCluskey (Inverclyde and Renfrewshire West) (Lab)
I congratulate the Secretary of State on his new position. He was lucky enough to visit my constituency during the election campaign and to visit the port of Greenock, where he saw the great potential that exists for Inverclyde and Renfrewshire West to contribute to the Government’s clean energy mission. What plans does he have to ensure that every part of the country, including in Scotland, can make a contribution? What message does he have for my constituents who are looking to the Government to make an investment in our ports and our marine assets?

Edward Miliband
My hon. Friend is an incredibly eloquent advocate for his port, which I was delighted to visit during the election campaign. He makes such an important point: for an island nation looking to take advantage—in terms of jobs as well as generation—of the opportunities of offshore wind, including floating offshore wind, our ports are a massively undervalued and under-invested asset. That is why in our manifesto we set out the largest public investment in ports since privatisation. My hon. Friend is absolutely right to say that it must involve the whole of our United Kingdom. Scotland has a special place in that, as it will become the new headquarters of GB Energy.

Dr Kieran Mullan (Bexhill and Battle) (Con)
In the last Parliament, I was lucky enough to be the co-chair of the all-party parliamentary group on deep geothermal. I felt that we made good progress in convincing the Government of its merits in helping the climate change transition. Will the new Secretary of State commit to a meeting with the REA—the Association for Renewable Energy and Clean Technology, which acts as the secretariat for the APPG—and me to see what more we can do to convince the new Government of the role that deep geothermal can play?

Edward Miliband
In the spirit that I spoke about in my statement, may I congratulate the hon. Gentleman on his work on deep geothermal? It was an outstanding example of how Members of Parliament can advance the role that particular technologies can play. He is a most eloquent advocate for this technology. Among the many places I went during the election campaign, I had the chance to see deep geothermal in Cornwall, which also has the potential for lithium mining: it is a source of critical minerals. Between me and the new Minister for energy—the Under-Secretary of State for Energy Security and Net Zero, my hon. Friend the Member for Rutherglen (Michael Shanks), who is going to be a very busy man—we will make sure that we meet the hon. Gentleman and his colleagues to take forward this agenda.

Madam Deputy Speaker (Dame Siobhain McDonagh)
In line with the Cornwall thread, I call Jayne Kirkham.

Jayne Kirkham (Truro and Falmouth) (Lab/Co-op)
Cornish ports such as Falmouth, which the Secretary of State visited during the campaign, have well-advanced plans to reconfigure to service floating offshore wind in the Celtic sea. Cornish further education providers are keen to gear up to provide specialised courses to support the speedy growth of that industry so that young people in Cornwall have the opportunity to train for those high-skilled jobs of the future, but in the past they have struggled because of a lack of Government support. Will the Secretary of State please confirm that support will be available to ports, businesses and educational establishments in Cornwall, to enable them to plug into the vast opportunities opened up by floating offshore wind in the Celtic sea?

Edward Miliband
I congratulate my hon. Friend on her election. May I say that she is a great person to go out on a boat with and that I very much enjoyed our tour?

My hon. Friend makes such an important point about the Celtic sea and about the opportunity that we have. One of the decisions on my desk will be how we make sure that we advance floating wind technology and that we manufacture it in the UK. As Tim Pick, the offshore wind champion, often reminds me, the largest floating wind prototype is off the coast of Scotland, but it is not manufactured in the UK. We need to change that.

Madam Deputy Speaker
I call Llinos Medi.

Llinos Medi (Ynys Môn) (PC)
Diolch, Dirprwy Lefarydd—thank you, Madam Deputy Speaker. The Labour manifesto stated that building new nuclear power and small modular reactors will be important in developing new clean power, yet in the King’s Speech yesterday there was not a single mention of nuclear power. Can the Secretary of State assure me that developing new nuclear power is still a priority of this Government? What are the specific plans for the Wylfa and Trawsfynydd sites in Wales?

Edward Miliband
I welcome the hon. Lady to her place. Great British Energy will of course have a strong interest in nuclear power, working with Great British Nuclear. It is very

important for the future. This Government were very clear in our manifesto about the role that nuclear power—both large-scale nuclear and SMRs—can play. I know that the last Government purchased the site for Wylfa, and it is something that we will certainly be looking at.

Rachael Maskell (York Central) (Lab/Co-op)
I welcome my right hon. Friend to his place and congratulate him on his ambition. BioYorkshire is a project—a green new deal—to create 4,000 green-collar jobs and upskill 25,000 workers. It will also create hundreds of spin-offs and new start-up companies focused on chemicals, agriculture and a new generation of fuels. Will he ensure that his Department has early engagement with this green new deal for York and North Yorkshire? Will he ensure that that is part of his energy superpower for the future?

Edward Miliband
I am grateful to my hon. Friend for drawing this project to my attention. In a way, the questions from both sides of the House demonstrate the huge potential we have in this area, not just to tackle the climate crisis and energy insecurity but to create the good jobs of the future. I undertake that the Department will want to look closely at her project.

Dr Andrew Murrison (South West Wiltshire) (Con)
What assessment has the new Secretary of State made of the proposal to build an interconnector between Morocco and the UK to bring clean solar and wind energy that could potentially provide 8% of the UK’s grid requirements?

Edward Miliband
I thank the right hon. Gentleman for his question. I certainly took an interest in the project when I was in opposition. I have met Xlinks, the company involved. I need to be careful about what I say on these matters, as he will appreciate, but it is certainly a project that my Department will want to consider.

Afzal Khan (Manchester Rusholme) (Lab)
I thank the Secretary of State for his statement. He has already shown more ambition and leadership on transitioning away from dirty energy in his 14 days in government than the Tories showed in 14 years. Does he agree that by making the UK a clean energy superpower, we will be able to tackle air pollution, which kills more than 100 people a year in Manchester alone?

Edward Miliband
That is the kind of question I like. My hon. Friend makes a serious and important point about air pollution, which is another reason why we need to move away from fossil fuels. In a sense, the tragedy of air pollution is that it is a silent killer. Tens of thousands of people a year die prematurely in our country as a result of air pollution. People would be out on the streets if it were any other issue but, because it is a silent killer, it is too little noticed. He is absolutely right that this is yet another reason why it is important that we act with speed and transition as fast as possible.

Kit Malthouse (North West Hampshire) (Con)
I am conscious that we do not have a register of interests at the moment so, for the Secretary of State’s own protection, it might be helpful if he could tell the House whether he accepted any donations or otherwise during the election campaign that might be declarable.

I want to press the Secretary of State further on protecting the landscape. Eighty per cent of my constituency is in an area of outstanding natural beauty, now rebranded as a national landscape. Can he reassure me that, in their planning decisions, he and the Secretary of State for Housing, Communities and Local Government will respect the notion of protected landscapes? There is a series of solar farm applications in my constituency, some of which are either in or impinge on the area of outstanding natural beauty. The landscape is protected for a reason, and it is important that the Government respect those

protections in planning law. I hope he can confirm that that will be the case.

Edward Miliband
On the right hon. Gentleman's first question, I am proud to have been supported by the GMB and the Union of Shop, Distributive and Allied Workers during the election campaign. I think the sums are below the declarable limit, but I am very happy to put that on the record.

As a constituency MP, I understand local people's concerns about planning issues, and we have to take those concerns seriously. We know that not all planning applications are good, and that is the Government's position. At the same time, particularly in the light of what the National Infrastructure Commission has said, it is widely recognised that how the planning process works has delayed the clean energy we need and has made us poorer as a country. This Government are determined to change that.

Brian Leishman (Alloa and Grangemouth) (Lab)
I thank the Secretary of State for the constructive manner in which he and the Government have approached the vital issue of the Grangemouth refinery, which is crucial to life in my constituency. Can he confirm that the UK Government will be tenacious and resolute in seeking an industrial future for the Grangemouth site? Will he agree to meet me to discuss potential options for its future?

Edward Miliband
I pay tribute to my hon. Friend for being such an eloquent advocate for Grangemouth so early in his time as a Member of Parliament. His counsel, advice and work on this subject have been very important. I have had three conversations with my counterpart in the Scottish Government over the last two weeks, which is a sign of how we intend to continue. We will work across parties and across Government to do all we can. The future of Grangemouth really matters to this Government, and we will leave no stone unturned in working with the unions, the companies and the Scottish Government to do everything we can to secure a viable future for activity on the site and for the communities of Grangemouth.

Pete Wishart (Perth and Kinross-shire) (SNP)
After the King's Speech and this statement, we still do not have a clue about what GB Energy will look like. The Government cannot even tell us where it will be placed, other than within the 30,000 square miles of Scotland. Greg Jackson, the boss of Octopus Energy, has said that if we reformed this absurd energy market through some form of regional pricing structure, everybody in the UK would have cheaper bills and Scotland would have the cheapest energy in Europe. Will the Secretary of State look at that and ensure that he delivers that prospect for everyone in these isles?

Edward Miliband
I am slightly disappointed but not surprised by the hon. Gentleman's tone. I would have thought that the Scottish National party would welcome a publicly owned energy generation company located in Scotland—my counterpart in the Scottish Government certainly welcomed it. Let us be absolutely clear that it will be a generator of energy. That is what companies such as Ørsted and Statkraft do. They own power in this country, and we will do the same. These are complex questions, and we definitely need fairness across the United Kingdom when it comes to energy prices. That is what this Government endeavour to deliver.

Nadia Whittome (Nottingham East) (Lab)
I congratulate my right hon. Friend on his appointment and welcome him back to government.

My constituents, and indeed all our constituents, have suffered the worst cost of living crisis in generations, thanks to the Conservative party being in thrall to fossil fuel interests and failing to invest in renewables. Does the Secretary of State agree that we need a publicly owned domestic energy champion

that can speed up our transition to green energy, reduce our reliance on volatile international gas markets and cut household bills at the same time?

Edward Miliband
My hon. Friend has been an incredibly eloquent advocate on these issues, including in the last Parliament. This is an important point for all parties in the House to reckon with. The energy insecurity case for action on clean energy is totally transformed from when I was Energy Secretary 15 years ago. Why? Partly because Russia's invasion of Ukraine reminds us of what exposure can look like, but it is also because we have seen a 90% fall in the cost of solar and a 70% fall in the cost of offshore wind over the last decade. The old argument that this energy will save us money in the long term but might cost more in the short term has changed. This is the cheapest, cleanest form of energy we can access.

Nick Timothy (West Suffolk) (Con)
There were 1,360 submissions from interested parties against the Sunnica application in West Suffolk, and the technical report recommending against the application is 339 pages long. Has the Secretary of State visited the Sunnica site? How many hours did it take him to read all the submissions and evidence to make his own detailed technical and legal judgment to overrule them.

Edward Miliband
Anyone who knows me knows that I am a super-nerd. I take all of my responsibilities, particularly my quasi-judicial responsibilities, incredibly seriously, and I did in all the judgments I made.

Alistair Strathern (Hitchin) (Lab)
My hon. Friends will find it nice referring to my right hon. Friend as the Secretary of State, and I thank him for his statement. His actions over the last few weeks underline the damaging inaction of the past 14 years. The CCC report out today confirms the true extent of the Tories' climate denialism and the way in which it has undermined our ability to deliver on so many important aspects of this agenda.

Does the Secretary of State agree that no less damaging than climate denialism is the climate delivery denialism to which Members in certain parts of this House are now starting to fall back? Can he confirm that this Government will not shy away from some of the tough choices that will have to be made to deliver not only the climate agenda that voters have supported but the energy security we desperately need?

Edward Miliband
I thank my hon. Friend for his important question. He draws attention to a fact in the Climate Change Committee report that is worth underlining: we have an internationally set, nationally determined contribution of 68% reductions by 2030 compared to 1990 levels. However, the Climate Change Committee said this morning that only a third of the emissions reductions required are covered by credible plans—that is the legacy we have been left. I am determined that we meet those targets, which is why we have to speed up and act in a way that the last Government did not.

My hon. Friend is right about clean energy. As I said earlier, this is a debate that this country will have to have. We can say no to clean energy and to building grids, but that will leave us poorer and more exposed, and mean that we are not doing what is required to tackle the climate crisis. This Government have made their choice; others will have to do so too.

Layla Moran (Oxford West and Abingdon) (LD)
I welcome the Secretary of State to his post. I welcome the tone of his statement and I share its ambition. Will he join me in commending the ambitious work of Lib Dem-led Oxfordshire county council, which wants to reach net zero by 2030, and the work of all councils everywhere? They are on the frontline of the climate crisis in our communities. He talks about local people having a say.

Does he agree that often the best way for local communities to feel they have that say is through their local councils?

Edward Miliband
Characteristically, the hon. Lady makes an important point. To deliver this agenda, we have to get the central-local relationship right, because if we try to deliver it all from the centre we will not succeed. To take the example of improving the appalling state of energy efficiency in our homes, much of that work will have to be delivered by local authorities. That is the right way to do it, and I pay tribute to all the local authorities across the country that are showing ambition in that area.

Rachel Blake (Cities of London and Westminster) (Lab/Co-op)
I congratulate the Secretary of State on his appointment. The Cities of London and Westminster have a huge contribution to make for the UK to be a clean energy superpower, not just through investment driven from the City of London and innovation driven by businesses across the constituency, but through our residential community energy schemes, such as Aldgate Solar Power, which is a fantastic local co-operative. However, after years of dither and delay by the Conservative Government and the former Conservative council, the Pimlico district heating undertaking is in desperate need of investment. Will the Secretary of State meet me to discuss how we can make it an exemplar scheme and mitigate the cost for local residents and leaseholders, who may be facing significant costs because of the nature and construction of the heating equipment?

Edward Miliband
I congratulate my hon. Friend on her election. I have worked with her in the past and I know she will be an outstanding Member of Parliament. The Under-Secretary of State for Energy Security and Net Zero, my hon. Friend the Member for Rutherglen, is going to be very busy, but I am sure he will happily meet her to discuss her question. She raises community energy schemes.

I want to emphasise that one thing Great British Energy will deliver is our local power plan, which will work with local communities and local authorities to deliver community energy. One of the answers to the question of how we build public consent for this is community ownership of energy. We want to drive that forward, and that is what the local power plan will be about.

Sir Gavin Williamson (Stone, Great Wyrley and Penkridge) (Con)
I congratulate the right hon. Gentleman on his appointment. The decisions that the Government have made will see a much more rapid decommissioning of oil and gas in the North sea. How much additional money has he secured from the Treasury to cover the Government’s legal costs for that decommissioning, and how much does he think it will cost in total?

Edward Miliband
The most important thing is to secure a just transition for those communities, as set out in our manifesto, through £8.3 billion from Great British Energy and over £7 billion from our national wealth fund. The truth is that there is massive debate in the House about licensing. The right hon. Gentleman will not have been at the debate when we discussed these issues, but the difference it makes to how much of our gas demand is produced domestically is that under the old Government—[Interruption.] Let me explain. Under the old Government policy, there would have been a 95% reduction in our demand met domestically, but under this Government’s policy, it will be 97%. For all the hue and cry from the Opposition, that is the reality.

Perran Moon (Camborne and Redruth) (Lab)
I welcome the Secretary of State to his position. Cornwall is one of the most deprived areas of northern Europe. However, we are blessed with vast renewable energy resources, as mentioned earlier: onshore wind, offshore wind, geothermal, tidal, solar and ground source heat technologies, as well as critical minerals, not from China but from Camborne and Redruth. Will the Secretary of State meet

me and Cornish colleagues to discuss how GB Energy will be used to realise our renewable energy potential and to transform local Cornish economies?

Edward Miliband
My hon. Friend is also a great guy to go on a boat with. As he says, Cornwall and our coastal communities have an incredibly important part to play. Some of the biggest economic challenges we face as a country are in our coastal communities. It is not easy, but if we get this right it will be a massive opportunity, not just for Cornwall but for all our coastal communities, and that is what this Government intend to do.

Madam Deputy Speaker (Dame Siobhain McDonagh)
I call Jim Shannon.

Jim Shannon (Strangford) (DUP)
Oh, thank you—you caught me off guard there, Madam Deputy Speaker, because I am so used to being the last one in the House to be called.

I welcome the Secretary of State to his place. I know it has always been his ambition to have the opportunity to have this role. Now he has it, I hope it goes well for him, and we will support him in what he is trying to achieve. With the new Government comes a new way of achieving goals and aims. I represent Strangford, which is a mostly rural constituency. Farming is a way of life and a key part of the economy. It creates thousands of jobs and opportunities, and is key to our future. Green energy and net zero are important for that as well. Will the Secretary of State confirm that the farming community and agrifood needs will be paramount in any effort to achieve a better world for all of us to live in?

Edward Miliband
I thank the hon. Gentleman for his kind words. In the last few days, I have sometimes sai3d to people that I feel that I am going back to the job I did 15 years ago, but getting to try and do it better. I am sure Members on the Opposition Benches would agree with that. It is an amazing opportunity and a big responsibility.

The hon. Gentleman makes an important point about the role of rural of communities, particularly farming communities. We are determined to get the balance right between food security, nature preservation and clean energy. The truth is that we, as a country, have not thought about the role of our land enough in recent years. We hope that will be driven by the land use framework that will be produced by my right hon. Friend the Secretary of State for Environment, Food and Rural Affairs.

Melanie Onn (Great Grimsby and Cleethorpes) (Lab)
I welcome the Secretary of State and his team to their place. He will know that my constituency has benefited hugely from offshore wind, particularly in operations and maintenance, but the critical part of the supply chain has failed to be produced. What does he suggest that Members across the House can do to ensure we get the supply chain right so that my constituents can benefit from that investment?

Edward Miliband
I welcome my hon. Friend back to the House. It is fantastic to see her back in her place—I congratulate her. She knows much about this subject through working for RenewableUK when she was outside the House, and she makes an important point. The shadow Secretary of State drew attention to our generation of offshore wind, which we have done well, but it is commonly accepted that we have not done nearly so well in generating the jobs that should come with that. Part of what I will be doing with my right hon. Friend the Secretary of State for Business and Trade is developing a proper green industrial strategy, including in the supply chain. That will provide clarity about the plan to ensure that we have not just energy generation, but job generation too.

Carla Denyer (Bristol Central) (Green)
I welcome the Secretary of State to his role, and welcome the Government's recognition that public investment must play a substantial role in decarbonising power. I have seen that from my previous career in offshore wind. However, this public investment must not be only about de-risking private sector investment, though some of his colleagues have implied that that would be the principal role of Great British Energy. Will the Secretary of State confirm that Great British Energy will invest in fully publicly owned, or at least majority publicly owned, renewable generation projects, and will not confine itself to taking minority stakes in private sector-led projects that would give it very little control?

Edward Miliband
I welcome the hon. Lady to her place. I can confirm that GB Energy will play a role in all kinds of ways, and that we are certainly not restricting it in the way that she suggests. Furthermore, in the constructive spirit of these exchanges, I would ask that the Green party thinks about its commitment to tackling the climate crisis, which we all share, and then thinks about this question of infrastructure. If it wants to tackle the climate crisis, it should know that that simply will not happen if its leading members say no to new energy infrastructure.

Torsten Bell (Swansea West) (Lab)
I, too, welcome the Secretary of State to his place. It is very appropriate that he is bringing this level of energy to the debate, and we all hope to see much more of that in the years ahead. It is a big contrast to the previous 10 years of inaction, which has cost us, not just in terms of our energy security, but in wasted opportunity. I wish to touch on one of those opportunities, which is the huge tidal power potential that Britain has in Swansea, and not just in Sefton. Does he agree that it is time to seize that opportunity, rather than waste it?

Edward Miliband
I welcome my hon. Friend to his place. He was head of policy when I was Leader of the Opposition, and I tended to do what he told me, rather than the other way round, so it is a particular pleasure to see him in his place. He makes such an important point. Tidal is an area where Britain is in the lead, but we want to go further and faster, as it has huge potential for our country.

Robbie Moore (Keighley and Ilkley) (Con)
I welcome the Secretary of State to his place, but I have to say that the Government's disastrous decision to industrialise our highly productive, good agricultural land by approving three huge solar farms clearly demonstrates their unwillingness to listen to the concerns of local rural communities; it runs roughshod over them and their ability to have their say. It is also hugely detrimental to food security. Can he explain to the House how he will look the farming community in the eye and explain his decision, as well as the Government's lukewarm words on food security being national security?

Edward Miliband
I am afraid that we have to conduct these debates on the basis of fact, not myth. Some 0.1% of our land, and around that amount of agricultural land, is being used for solar panels. We cannot proceed on the basis of myth. The hon. Gentleman talks about the farming community. Farmers want this. The National Farmers Union has supported this decision. Of course we will work with local communities, but every time an Opposition Member gets up and opposes clean energy, they are saying to the British people, "We are going to make you poorer. We are going to make Britain more energy insecure, and we are not going to tackle the climate crisis."

Imran Hussain (Bradford East) (Lab)
I thank the Secretary of State for setting out his very clear strategy. Will he confirm whether projects such as the new hydrogen hub in Bradford will be at the forefront of that strategy? Will he guarantee proper investment in places such as Bradford, so that we can grow and become a global leader in this sector, as well as generate well-paid and sustainable jobs?

Edward Miliband
I really welcome my hon. Friend’s advocacy on this issue. The hydrogen economy is a really important part of our future. It is yet another example of where we can succeed as a country and generate good jobs and good wages. I look forward to engaging with him on these issues.

Mr Alistair Carmichael (Orkney and Shetland) (LD)
May I take the Secretary of State back to the question of tidal power generation? If he speaks to the developers in the sector, they will tell him that they need two things to keep growing the sector. They need an expanded pot for the ringfenced allocation in the next allocation round, and they need an ambitious deployment target for the sector. Can we have an early announcement on that? If he really wants to understand the potential of marine renewables, he needs to get himself up to the European Marine Energy Centre in Orkney. He is very welcome there at any time, but he might want to come in the summer, while the days are still long.

Edward Miliband
I thank the right hon. Member for that invitation, and I will very much consider it, because I care a lot about this area. Obviously, I have to make decisions, in a certain capacity, about allocation round 6, but I have heard what he has said.

Blair McDougall (East Renfrewshire) (Lab)
I welcome the Secretary of State and his excellent team to their new roles. Can I look forward to welcoming them back to Whitelee wind farm, which he has been to many times before, to see how the largest onshore wind farm in the UK is contributing not only energy, but to the community and its life?

I declare an interest as the outgoing chair of the Uyghur Campaign in the UK. The Secretary of State will be aware that much of the polysilicon used in solar manufacturing is sourced from the Uyghur region, where Uyghurs and other Turkic Muslims are routinely used as slave labourers. The expansion of solar that the Secretary of State is envisioning gives us enormous economic leverage in the UK, and I wonder how he intends to use that leverage to get the industry to clean up its supply chains and seek alternative sources of polysilicon.

Edward Miliband
Let me welcome my hon. Friend to his place. He raises a very important issue. There were some standards put in place by the previous Government, but I think that we should take this issue incredibly seriously. I look forward to discussions with him on these issues.

Lee Anderson (Ashfield) (Reform)
The Secretary of State speaks very passionately about GB Energy. I remind him that just a few years ago, the Labour-controlled Nottingham city council had its own energy company called Robin Hood Energy, but this was Robin Hood with a modern twist: it robbed from the poor and gave to the rich, and cost the taxpayer about £50 million. Can the Secretary of State tell the House from that Dispatch Box how much GB Energy will cost the taxpayer?

Edward Miliband
First of all, let me explain to the hon. Gentleman that Robin Hood Energy was a supply company; this is a generation company. Robin Hood was a retailer, so it is different, but I have to say that I am surprised at the position that he takes. I thought his party was in favour of publicly owned energy. I think it produced lots of videos on social media to that effect.

Adam Jogee (Newcastle-under-Lyme) (Lab)
The Secretary of State knows from his recent visit to my constituency just how important energy security is for the people of Newcastle-under-Lyme. I am just sorry that there was no boat. Over 14 years of the Tories, families’ bills have been pushed up, and we were left at the mercy of Putin after his invasion of

Ukraine. May I urge the Secretary of State to get to work quickly, following his excellent return to the job—he is the comeback kid—so that we can cut bills and give my constituents the energy security that they deserve?

Edward Miliband
I think to be called a kid at my time of life is stretching things a bit, but I am nevertheless grateful to my hon. Friend for his contribution. He makes the important point that huge opportunities exist right across our country. The United States has used the Inflation Reduction Act to seize those opportunities. Our economy is smaller, but we intend to seize those opportunities with a proper, modern industrial policy.

Sarah Dyke (Glastonbury and Somerton) (LD)
I welcome the Secretary of State to his place. Somerset is home to many ground-mounted solar farm developments. Although I fully support the significantly increasing amount of electricity that we generate from renewables, I believe that the communities that host the infrastructure should receive compensation. The Government's recent policy statement on onshore wind agreed with that, so will community benefit funds be mandated for new solar farm developments?

Edward Miliband
The hon. Lady raises an important issue. The previous Government had a whole series of consultations out on community benefit. We will respond to those, but I want to be very clear that I believe that when a community takes on the responsibility of hosting clean energy infrastructure, it should benefit from it.

Anneliese Midgley (Knowsley) (Lab)
I welcome my right hon. Friend to his role, and I welcome his ambition. During the general election campaign, so many residents in Knowsley told me that they were struggling with the cost of living crisis and rising energy bills. Can the Secretary of State confirm that Great British Energy will allow us to take back control of our system, give us energy security, and crucially lower bills for families?

Edward Miliband
Let me welcome my hon. Friend to her place, and congratulate her on her election; she will be a great Member of Parliament. She raises such an important issue. More than 3 million people are in fuel poverty in our country. One thing that this Government will do that the last Government did not is demand that landlords raise the standard of their accommodation to a proper energy performance certificate standard C by 2030. That will make a dent in this issue, but the House should be in no doubt about our ambition to cut that number of 3.2 million as much as possible in the five years of this Parliament.

James Wild (North West Norfolk) (Con)
Plans for 90 miles of pylons from Lincolnshire to my North West Norfolk constituency and new substations are strongly opposed by local communities. Will the Secretary of State commit to a review of network technologies, and consider a presumption in favour of underground or offshore proposals?

Edward Miliband
I will look at all proposals, but I think the hon. Gentleman knows that underground cables cost six to 10 times more; that is why the last Government did not agree to them. If part of our challenge is to cut bills for people, that is not a sustainable solution for the future. I am sympathetic to all MPs who raise issues on behalf of their constituents, but I gently say again to him that if we want to avoid a repeat of the cost of living crisis, if we want to tackle the climate crisis, and if we want energy security, we will have to build the grid in our country.

Henry Tufnell (Mid and South Pembrokeshire) (Lab)
I welcome the comments of the Secretary of State, which are incredibly encouraging for communities such as mine in west Wales. Throughout the campaign,

I heard again and again the demand from local people, from Pembroke Dock to Milford Haven, for well paid, secure jobs in the industries of the future. In the port of Milford Haven we have a huge opportunity, particularly in the area of floating offshore wind. Will the Secretary of State meet me to discuss the opportunities for my constituency, and how we can overcome the barriers to investment in local jobs?

Edward Miliband
I was delighted to visit the port of Milford Haven during the election campaign. There is an interesting issue here: the £1.8 billion investment that this Government are making in our ports will hopefully allow us to invest in floating offshore wind at more ports than the last Government were able to. I cannot make promises about particular ports from the Dispatch Box, but this is so important, because if we are to get the jobs here, we must invest in our port infrastructure.

Greg Smith (Mid Buckinghamshire) (Con)
The Secretary of State referred multiple times to community consent, yet the 6,000 acres of solar installation in the constituency of my hon. Friend the Member for West Suffolk (Nick Timothy) had no community consent. That sends shivers down the spine of my constituents in and around the villages known as the Claydons, who are looking down the barrel of a 2,100-acre solar installation called Rosefield. That is on top of a proposed battery storage plant next door, and on top of the National Grid wanting to build a brand-new substation to take the thing in; it is the tail wagging the dog. What will change to make community consent a reality?

Edward Miliband
What the hon. Gentleman wants for nationally significant projects is community veto.

Greg Smith
indicated assent.

Edward Miliband
The hon. Gentleman nods his head. I will be honest with him: we are not going to give community veto. The last Government did not give it either. There are nationally significant projects that the Government have to make decisions on. Obviously, we have to take into account the views of local communities, but the whole point of decision making on the nationally significant infrastructure programme is that we look at the needs of the nation as well. That is why community benefit is important. If we ask local communities to host clean energy infrastructure, sometimes they will not want it, or sometimes a minority will not want it—I am not making presumptions in this case—and then we should ensure that those communities benefit from it.

Andrew Pakes (Peterborough) (Lab)
I welcome the Secretary of State and his team to the Chamber. It is a privilege to make my first contribution in this House on such an ambitious plan. It is ambitious not just on net zero, the climate crisis and energy security, but on jobs and opportunities for young people in places such as mine. In my constituency, Peterborough college is already building a green technology centre to develop new green apprenticeships, and we have plans for a clean energy transition centre. Will the Secretary of State put on record his commitment to working with trade unions, communities, colleges and others, so that we can move from blue-collar to green-collar apprenticeships, and give young people an opportunity to succeed in life as we meet our climate and energy needs?

Edward Miliband
I welcome my hon. Friend to his place. He raises the important question of how we ensure—this issue will be familiar to Members across the House—that we not only have the capacity to generate jobs in clean energy but can meet the skills needs of the country in order to fill them. This is frankly something on which we need to do a lot better as a country. My Department—I will talk about this in

the next few weeks—will take on more of a function around looking at the skills needs of the clean energy economy, working with the Department for Education on how we meet them. He raises a crucial point in that context.

Tony Vaughan (Folkestone and Hythe) (Lab)
I congratulate the Secretary of State and his team on their recent appointment and thank them for their recent visit to Cheyne Court wind farm in my constituency, which was opened by the Secretary of State in 2009. Dungeness A and Dungeness B in my constituency are former nuclear power stations that are in the process of being decommissioned. Dungeness has the land, infrastructure, grid connections and local expertise that make it well placed for new nuclear. Will the Secretary of State be willing to meet me to discuss how we can harness Dungeness's potential for the local area and the regional community?

Edward Miliband
I was delighted to visit the Cheyne Court wind farm with my hon. Friend—a wind farm that I opened 15 years ago on my first visit as the Secretary of State. Pictures of how much I have aged between then and now are available on request. He raises a really important issue. He is an important advocate for clean energy, whether in relation to wind power or the potential nuclear programme. Both are important to us.

Richard Burgon (Leeds East) (Lab)
I congratulate the Secretary of State on his position, and on the vigorous start that he has made on this most important of issues facing humanity and the world. I was particularly encouraged to see him put climate diplomacy high on the agenda, and at the heart of the new Cabinet. That is so important, after 14 years of the previous Government's denigration of Britain's role in the world on this most important issue of tackling climate change. Will he further outline to the House the work that he plans to ensure that, unlike in the past 15 years, Britain will be the main player that it needs to be in global co-operation on tackling the threat of climate change?

Edward Miliband
I am pleased that my hon. Friend has asked me that question. The world wants to see British leadership, but British leadership starts at home with the power of example. If we do not show that we are acting at home then people say, "You're telling us one thing abroad, but doing something different when it comes to your own domestic situation." The truth is that COP29 in Azerbaijan and crucially COP30 in Brazil will be very important moments. COP30 is when the world has to come to terms with how far off track we are from 1.5°C, and put in our nationally determined contributions for 2035. I look forward to Britain playing as much of a constructive role in those negotiations as we can.

Luke Myer (Middlesbrough South and East Cleveland) (Lab)
I welcome the Secretary of State to his place. Teesside is perfectly positioned for the green jobs of the future—jobs in hydrogen, clean power and ports—as my right hon. Friend knows from his recent visit to Teesport. Will he meet me and colleagues to ensure that we can bring jobs and investment to Teesside?

Edward Miliband
My hon. Friend, who I welcome to his place, makes such an important point about the role Teesside can play. I saw on a recent visit how much potential there is and we look forward to working with him on these issues.

Luke Murphy (Basingstoke) (Lab)
I welcome my right hon. Friend and his team to their place. He had the privilege of visiting Basingstoke college of technology during the election campaign to meet some of the fantastic apprentices and students there. Further to his answer to my hon. Friend the Member for Peterborough (Andrew Pakes), will he commit to working with colleges such as BCOT as he develops the plan for skills and training for the hundreds of thousands of jobs we need to deliver on our ambition of a clean energy superpower?

Edward Miliband
I thank my hon. Friend and welcome him to the House. He brings a wealth of knowledge and experience on these issues. I enjoyed my visit to Basingstoke. What really came home to me on that visit was young people's enthusiasm for this agenda—not simply because they care about the climate crisis, but because they see this as a potential future for themselves, their friends and their family. I look forward to working with colleges such as his to make that a reality.

Josh Fenton-Glynn (Calder Valley) (Lab)
It is great to see my right hon. Friend in his place after over a decade of leadership on this issue, talking about climate change and really making that difference. If we are to be a clean energy superpower, we need to learn from good examples and better practice wherever it is. In Calder Valley, Together Housing is a good example of a housing association that is doing well in putting solar on roofs and taking advantage of microgeneration. However, I am sure he will agree that one problem for those kinds of projects is that the national grid is not up to scratch. Key to being a clean energy superpower is getting a modern national grid. Will he also agree to visit some of Together Housing's projects, which keep bills down and put solar panels on roofs?

Edward Miliband
I welcome my hon. Friend to his place and congratulate him on his election, and I commend his housing association for what it is doing. He raises one of the biggest issues that the previous Government faced and that this Government face. The flipside of all the Conservative Members saying that they do not want the grid built is what my hon. Friend just said—maybe they should have a conversation. What he is saying is that if we do not build the grid, we cannot get the clean energy and we cannot cut bills for our constituents. I do not say that this is easy, and I do not want to pretend that it is. Certainly the last Government did not find it easy, but we have to decide. To govern is to choose, and our choice is that we believe this clean energy infrastructure needs to be built.

Peter Swallow (Bracknell) (Lab)
Last week Bracknell Forest council held a climate change summit, bringing together local businesses, schools and community organisations in my constituency to engage in discussions about how best to face the challenges of climate change. Does the Secretary of State agree that communities are crying out to take part and to be engaged in the clean energy transition?

Edward Miliband
Again, I congratulate my hon. Friend. He raises an important point that we have not touched on: the role of citizens in this change. My sense is that, while of course there are specific planning issues that people raise about their own communities, the view of many citizens in our country is, "What can I do? What difference can I make?" I think the Government need to do a better job of answering that. That is not nanny-statism, to reassure the Conservatives, but public information about the difference people can make in this incredibly important cause.

Madam Deputy Speaker (Dame Siobhain McDonagh)
Last but not least, I call Laurence Turner.

Laurence Turner (Birmingham Northfield) (Lab)
As a recent official of the GMB trade union, which has been mentioned in this statement, I welcome the Secretary of State and his team and officials to their place. How welcome it is to have a change of Government from the record of the last 14 years, with the ducking and delaying of difficult decisions on issues from nuclear to gas storage, and the exclusion for too long of workers' voices from the decisions that affect the energy system. In opposition, my right hon. Friend established an energy transition working group to bring together trade unions and workers' voices at the heart of energy plans. Can he confirm today that continuing that group in government will be an early priority for this new Administration?

Edward Miliband
I welcome my hon. Friend to this House and thank him for the work we did together in opposition on all these issues. As this is the final question, he ends on a really important point: this Government have a completely different attitude to the role that trade unions can play in the future of our energy system, and we are proud of it. If we are to make the energy transition, including in the North sea, and build a proper industrial policy for the future, we should do what every other self-respecting nation does and have trade unions at the heart of our policymaking and decision making. That is what this Government will do.

Madam Deputy Speaker
Congratulations everybody on getting through that; I am delighted that everybody got to ask their question and I thank the Secretary of State for his responses.

A.2 SEUK Solar farms and food security: the facts

Solar Energy UK

SOLAR ENERGY UK BRIEFING

Solar farms and food security: the facts

Sept 2022

Overview

Claims that solar farms jeopardise the UK's food security are false. The opposite is true, and this briefing explains the role of solar farms in supporting the UK's food supply. It is intended to help members of the public, MPs, planning officials and others with an interest in countryside management to understand how solar energy fits into the UK's land use needs. Solar Energy UK is available to discuss the topics in this briefing.

Summary

- **Solar helps address climate change, which is the single biggest threat to UK food security.** This is according to the Department for Environment, Food and Rural Affairs, which says that climate change could reduce the UK's stock of high-grade agricultural land by nearly three-quarters by 2050. Because solar farms generate near zero-carbon electricity, they help address climate change. This means they are helping to improve the UK's food security.

- **Solar cuts costs, which helps keep UK farmers in business.** Solar provides some of the cheapest electricity in history. Without solar, energy prices would be even higher. This is important, because costs are increasing for agricultural businesses, just like everyone else. Solar can also provide a direct and long-term revenue stream for farmers who choose to host a project on their land. By helping to keep UK farming profitable, solar is also helping to secure the UK's domestic food supply.

- **Solar preserves agricultural land.** Planning permission for a solar farm is time limited, and installations can be completely dismantled at the end of their operation. Solar does not take agricultural land, it borrows it, and because agricultural land under a solar farm is in effect left fallow, soil health can recover. [i] Solar farms themselves occupy a minuscule area, and even with five times as many solar farms deployed around the UK, they would still occupy less land than the amount currently occupied by golf courses.

How does solar support food security?

1. Tackling climate change. The UK Government Food Security Report, published in December 2021, is explicit: "The biggest medium to long term risk to the UK's domestic production comes from climate change and other environmental pressures like soil degradation, water quality and biodiversity." [ii]

The report quantifies this risk, noting that under a medium emissions scenario, climate change could reduce the proportion of 'Best and Most Versatile' agricultural land from a baseline of 38.1% to 11.4% by 2050. This would mean a reduction in the UK's prime agricultural land of almost three quarters. The evidence is already available: for example, the drought of 2022 literally caused the potato crop to shrink.[iii] Climate change causes crop failure, and solar farms help address climate change. This means they are helping to defend UK and global food supply. [iv]

There are numerous additional ways in which solar farms help improve natural capital and biodiversity, and hence alleviate other pressures. Indeed, improving biodiversity, such as by increasing the number of pollinators, is critical in itself for agriculture.

These benefits are extensively documented in Solar Energy UK's industry-leading Natural Capital Best Practice Guidance. This was developed with experts from organisations including Lancaster University, the National Farmers Union, and the Bumblebee Trust, and was endorsed by Natural England, the government's advisor for the natural environment in England. [v] A diverse range of wildlife and environmental organisations have in addition signed Solar Energy UK's open letter on the topic of solar farms and the environment. [vi]

2. Addressing the energy crisis. The energy crisis enveloping the country is a problem for farming and agricultural businesses as well as domestic consumers. British businesses could see their bills increase by 500% in 2022. [vii] This could be a catastrophe for farmers, who are already facing major economic uncertainty. [viii]

Solar farms can address this problem in two key ways.

First, they produce some of the cheapest electricity in history. The UK's 2022 renewable energy auction saw solar farms successfully bid to generate power at prices four times cheaper than gas.[ix] Without solar, energy prices would be even higher. This is important, because costs are increasing for the agricultural sector, just like everyone else. [x]

Second, farmers can receive direct rental and other income if they choose to host a solar farm on part of their land.[x] This is long term, stable revenue, in an uncertain world. By providing financial security, solar is helping to keep UK farming profitable, and keeping farmers in business means securing the UK's food supply. [xii] The National Farmers' Union has been explicit on the point, and farmers around the UK are embracing solar for exactly this reason. [xiii]

3. Safeguarding the UK's land. Planning permission for a solar farm is temporary, reversible and can support continued agricultural production – for example, by grazing sheep. Solar farms can be completely dismantled at the end of their life. Furthermore, the extended fallow period enables the recovery of soil health, addressing the degradation of many years of ploughing arable land. Solar farms can also make use of livestock to help graze the grass around the panels itself, demonstrating that functioning, productive soil remains in place. [xiv]

In support of these and their other benefits, solar farm developers, builders and tenants who are members of Solar Energy UK also agree to comply with the industry's 11 commitments, to ensure projects are developed responsibly. [xv] Following on from this work, and the industry's leadership on managing natural capital, Solar Energy UK is now also developing best practice guidance on solar farm planning and community engagement. This is because the solar industry is committed to supporting rural communities, as well as being a responsible steward of the countryside.

It should also be noted that solar farms, which are wildly popular across all demographics, occupy a minuscule proportion of UK land. [xvi] Even with a five-fold increase in deployment – in line with the Government's energy strategy – solar farms would occupy 0.29% of the UK's total land area. [xvii] This is less than the amount currently occupied by golf courses, and an absurdly small area to help improve our energy security. [xviii] More solar means more home-grown energy, and that means less dependence on Russia and the Middle East.

This is patently in the UK's strategic interest, although it is just one of the many benefits of solar technology. Solar farms reduce the UK's carbon footprint, displace extortionate fossil fuels, cut bills, create jobs, benefit nature, and bolster the nation's energy security. [xix]

[i] Defra R&D project SP08016, Best Practice for Managing Soil Organic Matter in Agriculture. See http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=2&ProjectID=15536

[ii] https://www.gov.uk/government/statistics/united-kingdom-food-security-report-2021/united-kingdom-food-security-report-2021-theme-2-uk-food-supply-sources#united-kingdom-food-security-report-2021-theme2-indicator-2-1-1.

[iii] See eg https://www.ft.com/content/2ed52263-9269-40ee-853b-11dd54d043a6 and https://www.theguardian.com/environment/2022/aug/12/mass-crop-failures-expected-in-england-as-farmers-demand-hosepipe-bans?CMP=Share_AndroidApp_Other.

[iv]Solar farms produce near zero-carbon electricity. See https://www.carbonbrief.org/solar-wind-nuclear-amazingly-low-carbon-footprints

[v]https://solarenergyuk.org/wp-content/uploads/2022/05/NCBPG-Solar-Energy-UK-Report-web.pdf

[vi]https://solarenergyuk.org/wp-content/uploads/2022/09/28.09.2022-SEUK-Joint-Letter-on-Land-Use.pdf

[vii]https://www.cornwall-insight.com/press/businesses-could-see-energy-bills-increase-fivefold-in-october/

[viii]The situation is so serious that in 2022 the government had to bring forward the cash payments it provides as part of the Basic Payments Scheme: https://www.gov.uk/government/news/payments-brought-forward-to-help-farmers-with-cashflow. See also the 2022 Farmers Weekly state-of-the-industry survey, which reported that seven out of eight farmers "had no clear idea" how their business would survive without the BPS: https://www.fwi.co.uk/business/business-management/agricultural-transition/survey-farms-hampered-by-uncertainty-over-future-income.

[ix]See https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1088875/contracts-for-difference-allocation-round-4-results.pdf and https://www.carbonbrief.org/analysis-record-low-price-for-uk-offshore-wind-is-four-times-cheaper-than-gas

[x] It should be noted that an additional economic challenge for UK agriculture, and something which is causing food insecurity, is the labour crisis in the sector. Parliament's Environment, Food and Rural Affairs Committee said in March 2022 that it had found "clear evidence that labour shortages have badly affected the food and farming industry - threatening food security [...and...] causing crops to go unharvested and left to rot in fields." See https://committees.parliament.uk/publications/9580/documents/162177/default/.

[xi] For an example of a landowner FAQ from a solar developer, see https://jbm-solar.com/faqs/

[xii] Many farming businesses also choose to install rooftop solar panels, which Solar Energy UK strongly supports. See, for example, https://www.bbc.co.uk/news/uk-england-gloucestershire-62437048.

[xiii] https://www.cityam.com/leading-farming-union-defends-solar-panels-from-tory-attacks/. For examples of solar supporting income diversification, see https://www.thescottishfarmer.co.uk/diversification/20071963.energy-costs-soar---even-scotland-comes-sun/, https://www.walesfarmer.co.uk/news/20297233.pembrokeshire-farmer-wins-woman-farmer-year-title/ and https://www.nfuonline.com/updates-and-information/solar-farms-and-the-british-landscape/ A guide to commercial rooftop solar is available at https://solarenergyuk.org/wp-content/uploads/2022/06/CBGuide_June2022.pdf.

[xiv]https://www.bbc.co.uk/news/uk-england-humber-62352061.

[xv] https://solarenergyuk.org/resource/solar-farms-10-committments/.

[xvi] There is extensive and up to date industry, government and private sector polling which demonstrate solar's enormous popularity, including solar farms. See, for example, https://solarenergyuk.org/wp-content/uploads/2022/01/Copper-Consultancy_Solar-Energy-UK_Public-attitudes-to-solar_January-2022.pdf, https://solarenergyuk.org/wp-content/uploads/2022/01/Copper-Consultancy_Solar-Energy-UK_Public-attitudes-to-solar_January-2022.pdf, and https://www.businessgreen.com/news-analysis/4053952/tory-members-stronger-green-energy-policies-sunak-cools-heat-pumps.

[xvii] Based on an assumed 48 GW of ground-mounted solar, with 9.6GW of existing solar farms occupying an average of 6 acres / MW (figure via Solar Energy UK members), and 38.2GW of new solar farms occupying an average of 3 acres / MW (figure via BEIS: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1015236/en-3-draft-for-consultation.pdf). The UK's total land area is 24.2 million hectares (see https://www.savills.co.uk/research_articles/229130/274017-0). As solar technology improves, the land area required for a given generation capacity continues to decrease.

[xviii] Based on golf courses occupying 1,256 square kilometres. See https://www.bbc.co.uk/news/uk-41901297.

[xix] The UK solar industry is, in general, a job-creation machine. Solar Energy UK analysis shows the UK solar industry could support 60,000 jobs by 2035, with corroborating evidence from, for example, the UK Energy Research Centre, and Green Alliance. See https://ukerc.rl.ac.uk/UCAT/PUBLICATIONS/UKERC_Green-job-creation-quality-and-skills_A-review-of-the-evidence_Final.pdf and https://green-alliance.org.uk/wp-content/uploads/2022/07/Powering-the-labour-market.pdf respectively.

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A.3 SEUK Factsheet: Solar Farms and Agricultural Land

Solar Energy UK

Factsheet

Solar Farms and Agricultural Land

June 2024

About Us

As an established trade association working for and representing the entire solar and energy storage value chain, Solar Energy UK represents a thriving member-led community of over 400 businesses and associates, including installers, manufacturers, distributors, large-scale developers, investors, and law firms.

Our underlying ethos has remained the same since our foundation in 1978 – to be a powerful voice for our members by catalysing their collective strengths to build a clean energy system for everyone's benefit.

Our mission is to empower the UK solar transformation. Together with our members, we are paving the way for solar to deliver 70GW by 2035 by enabling a bigger and better solar industry.

SEUK would like to thank Dr Jonathan Scurlock, Chief Adviser, Renewable Energy and Climate Change, National Farmers' Union of England and Wales (NFU), for help in drafting this factsheet.

Solar Farms and Agricultural Land

This note sets out the considerations that should be given to assessing the impacts of solar farms on agricultural land, both in policy and practical terms. This is intended to be a useful factual guide for Local Planning Authorities in their decision making.

Introduction

Ground mounted solar farms are considered to represent a key part of the UK's Energy Security and Net Zero Strategy. This includes an ambition for a fivefold increase in solar by 2035, up to 70GW. Powering Up Britain (2023) recognises that "we need to maximise deployment of both ground and rooftop solar to achieve our overall target. Ground-mount solar is one of the cheapest forms of electricity generation and is readily deployable at scale". Importantly, such an increase in solar capacity would result in just 0.3% of land within the UK being occupied by solar farms.

While policy directs ground mounted solar farms to areas of previously developed or lower grade agricultural land, where such opportunities exist, it also recognises that land type should not be the overriding factor governing site suitability. This is particularly relevant as areas of poorer quality land are often constrained for other reasons such as absence of suitable grid access, flood risk, terrain difficulties or the land simply being unavailable for development. This means that solar farms are predominantly located on agricultural land.

Given the temporary and fully reversible nature of solar farm developments, which do not lead to the loss or deterioration of underlying soil quality, and can be maintained in agricultural use, the use of agricultural land will not compromise our national agricultural resource and ultimately will provide diversification for farming businesses seeking to respond to the volatile impacts of Brexit and the Ukraine conflict.

This note covers the following areas:

- Policy context
- Locational requirements
- Impacts during construction
- Impacts during operation
- Solar farms and food security
- Relevant planning decisions

Policy Context

The National Planning Policy Framework (NPPF) sets out at paragraph 180(b) that the economic benefits of Best and Most Versatile Agricultural Land (BMVAL) should be recognised. Footnote 62 of the NPPF, referred to in paragraph 181, advises that where significant development of agricultural land is involved, poorer quality land should be used in preference.The footnote then continues to outline how the availability of land used for food production should be considered alongside other considerations when deciding what sites are most appropriate for development.

The concept of "Best and Most Versatile" land is based on the agricultural land classification (ALC) scheme. The scheme is used to grade agricultural land: BMVAL is excellent to good quality land in grades 1, 2, and 3a.

The revised NPS for Renewable Energy Infrastructure, EN-3, (Jan 2024[1]) outlines how solar and agriculture can be complementary.

1. The National Policy Statements for energy infrastructure, are a material consideration in the determination of planning applications for such infrastructure under the TCPA 1990

The NPS EN-3 states that land type should not be a predominating factor in determining the suitability of a site for solar development. By consequence, a developer must instead identify why the use of BMVAL is necessary and then whether it is possible or feasible, when taking into account other material planning considerations, to locate the scheme on poorer over higher grade agricultural land. Paragraph 2.10.30 of the revised EN-3' (published November 2023 and came into force 17 January 2024) is clear that the use of Grade 1, 2 and 3a land for solar development is not prohibited.

For schemes that could potentially affect BMVAL land in excess of 20 hectares (ha) Natural England are a statutory consultee and should be relied upon to make an informed judgement as to whether a proposed development would result in unnecessary loss of BMVAL.

"Renewable energy production is a core part of the NFU's net zero plan and solar projects often offer a good diversification option for farmers. However, there is a need to strike a balance between food security and climate ambitions. Planning guidance states that, wherever possible, large scale solar farm development should be located on lower quality agricultural land, avoiding the most productive and versatile soils." NFU.

Locational Requirements

The location of energy projects is dictated by the availability of a viable grid connection. They cannot simply be located anywhere and areas of search for available land will naturally be restricted to a specified distance (which varies depending on the cost of the grid connection and scale of the project, amongst other things) from substations and powerlines with sufficient capacity to accept the incoming power. The nature of solar farms means that they are distributed generation and as such they can connect into local distribution networks at lower voltages to help meet local needs and net zero objectives.

In terms of land-use, each local area will be subject to different constraints. Some Local Authorities are predominantly urban with limited land available for renewable energy projects, whilst others will be predominantly rural with high portions of higher quality agricultural land. This means that in some areas, there is no opportunity to avoid developing on BMVAL land.

While developers should still seek to use lower grade land, other constraints also need to be considered such as flood risk or complex terrain, or whether there simply isn't a large enough area of land available to allow a viable development to come forward.

In the case of previously developed or brownfield land, such land is usually small scale and already allocated within local development plans for other development types that would result in permanent loss of soils such as residential or commercial development. Rooftops are generally small scale compared to solar farms, still have grid connection considerations and are not consistent with the large-scale deployment needed to meet net zero targets.

Potential Impacts During Construction and Decommissioning

Unlike most forms of development which are permanent and/or have much more widespread disturbance during construction, installation of a solar farm causes minimal long-term damage to soils if appropriately managed during construction.

While solar farms do cover large areas, the actual area of soil that is disturbed is very small, typically less than 2% of the total site area. Of the area that is disturbed, most of this is the access track which is limited only to access the inverters and substations.

These buildings require foundations but these are typically small scale. In all cases, the land will not be 'lost' but will be restored at the decommissioning phase.

Construction itself can cause localised disturbance to soil from vehicle movements throughout the site, particularly in wet conditions. However, soils quickly recover and can be remediated following construction.

Importantly, construction is short term and temporary in duration and through adoption of a Construction Environmental Management Plan, construction activities can be controlled to ensure that the site is built to take into consideration any potential impacts on soils; for example, careful storage and replacement of topsoil and subsoil when laying cable trenches.

At the end of the solar farm's operational period, given the simple construction/ decommissioning techniques associated with solar farms, all infrastructure can be easily removed and agricultural activities recommenced. This decommissioning is typically secured through a condition. In terms of a development type, solar farms are very much reversible and temporary.

Potential Impacts During Operation

As stated in the previous section, ALC grade will not be impacted following construction of a solar farm as soil removal does not comprise part of the construction programme, and any localised disturbances are remedied within 1-2 years of the site coming into operation. Typically solar farms are subject to a Landscape and Environmental Management Plan (LEMP) which requires the ground beneath and around the panels to be seeded and managed to promote biodiversity through mowing or grazing, as well as typically avoiding the use of pesticides, herbicides, and fertilizers whilst the solar farm is operational. Grazing by small livestock is often used to keep the grass low and continue an agricultural use during the project lifetime.

On sites which were subject to intensive arable cultivation, soils may recover with improved health and importantly more carbon storage.

The UK Food Security Report 2021 [Defra, 2021] notes that whilst producing wheat is an efficient way to produce calories, it has a significant environmental impact "due to the lack of biodiversity in conventional grain fields, damage to soil through ploughing, environmental harms caused by fertilisers and pesticides, and the oil use embedded in fertilisers and field operations".

Furthermore, solar farms provide diversification for landowners, by adding an index-linked, consistent income stream to their business that is not dependent on agriculture. It provides longer-term security against volatility in wholesale food commodity markets and yields, offering support to their wider farming business/ operations.

Solar Farms and Food Security

Government policy does not specifically encourage food production, although the 2022 government response to the independent Food Strategy Review included a commitment to broadly maintain the current level of food output.

Currently solar farms occupy less than 0.1% of the UK's land. To meet the government's net zero target, the Climate Change Committee estimates that we will need 90GW of solar by 2050 (70GW by 2035), which would mean solar farms would at most account for approximately 0.6% of UK land – less than the amount currently occupied by golf courses.

The UK Government Food Security Report, published in December 2021, also implies that solar farms do not in any way present a risk to the UK's food security. The report is explicit and states: "The biggest medium to long term risk to the UK's domestic production comes from climate change and other environmental pressures like soil degradation, water quality and biodiversity." The report quantifies this risk, noting that under a medium emissions scenario, climate change could reduce the proportion of BMVAL from a baseline of 38.1% to 11.4% by 2050, a 70% reduction.

Importantly, there is no current planning policy requiring landowners of BMVAL to use it solely for food production – rather, it is described as the most flexible, productive and efficient land for food and non-food crops. Other land uses include feed crops for animals, biofuel production, and there are other policy measures which could take the land out of food production in favour of an alternative use. On this basis, food security does not have material weight in the determination of a planning application.

Relevant Planning Decisions

Bramley (APP/H1705/W/22/3304561)

In the appeal decision for the solar farm at Bramley, Hampshire, the Inspector, noting that 53% of the site was of BMVAL, noted (para 58) "The agricultural land would not be permanently or irreversibly lost, particularly as pasture grazing would occur between the solar panels. This would allow the land to recover from intensive use, and the soil condition and structure to improve. The use of the soils for grassland under solar panels should serve to improve soil health and biodiversity and the proposed LEMP, which could be secured by a condition attached to any grant of planning permission, includes measures to improve the biodiversity of the land under and around the panels".

Scruton (APP/G2713/W/23/3315877)

The appeal decision at Scruton considered the matter of food security in great detail. The Council refused the scheme on the basis of the impact on agricultural land. The Inspector found that the majority of the land was not BMVAL, but that even if it was, it wouldn't be "lost", and neither the development plan nor national policy prevented the use of such land. The Council's case at the hearing was that the loss of productivity of the land for the 40 year duration of the scheme was objectionable, but the Inspector noted that "the specific way agricultural land is used is not a matter that is subject to planning controls…Given this, the fact that the proposal would limit the ability to carry out any arable farming does not, in my opinion, mean that it results in the loss of agricultural land when it can still be used for other agricultural uses. Furthermore, current government schemes actually encourage farmers to take land out of production and put it to grass, meadows, or trees for carbon capture."

The Inspector recognised the scarcity of grid connections nationally. The proposed development would make a valuable contribution to achieving local and national renewable energy goals as well as achieving a substantial biodiversity net gain. In their decision, the inspector also noted:

- Agricultural use could continue during the operational phase (para 20)
- There would likely be improvements to soil health from being rested from intensive arable use (para 21)
- A change from arable to grassland use is not a matter subject to planning controls (para 22)
- There would not be temporary or permanent loss of BMVAL (para 25)
- The proposals (in this case of 65 ha) would not be detrimental to the nation's food security (para 26)

Longfield (EN 010118)
In the Nationally Significant Infrastructure Project decision at Longfield Solar Farm of 26th June 2023, the Secretary of State agreed with his Examining Authority that the use of 150 ha of BMV, as part of a larger site, should be ascribed "a small amount of negative weight in the planning balance" (para 4.59). It was concluded that about 6 ha would be lost, and the rest would be lost temporarily. There would be no jeopardising of "the UK's food security either now or in the future" (para 4.57).

Conclusions

Planning policy seeks to direct solar farm development away from higher grade agricultural land where there is land that has been previously developed or is of lower quality. However, given the locational constraints required for development of solar farms, such an objective is not always possible, especially when considering other environmental considerations and availability of land.

Importantly, the construction and operation of a solar farm will not lead to the long-term degradation or loss of soils. Instead, the solar farm may give intensively farmed land the opportunity to recover and carbon to be stored over the operational life of the project. Opportunities for biodiversity enhancements and continued livestock grazing further add to the benefits during this period.

While there will be the loss of arable production on some higher quality land, this will not impact on the UK's food security and in any event is not considered to be a material matter for the planning system.

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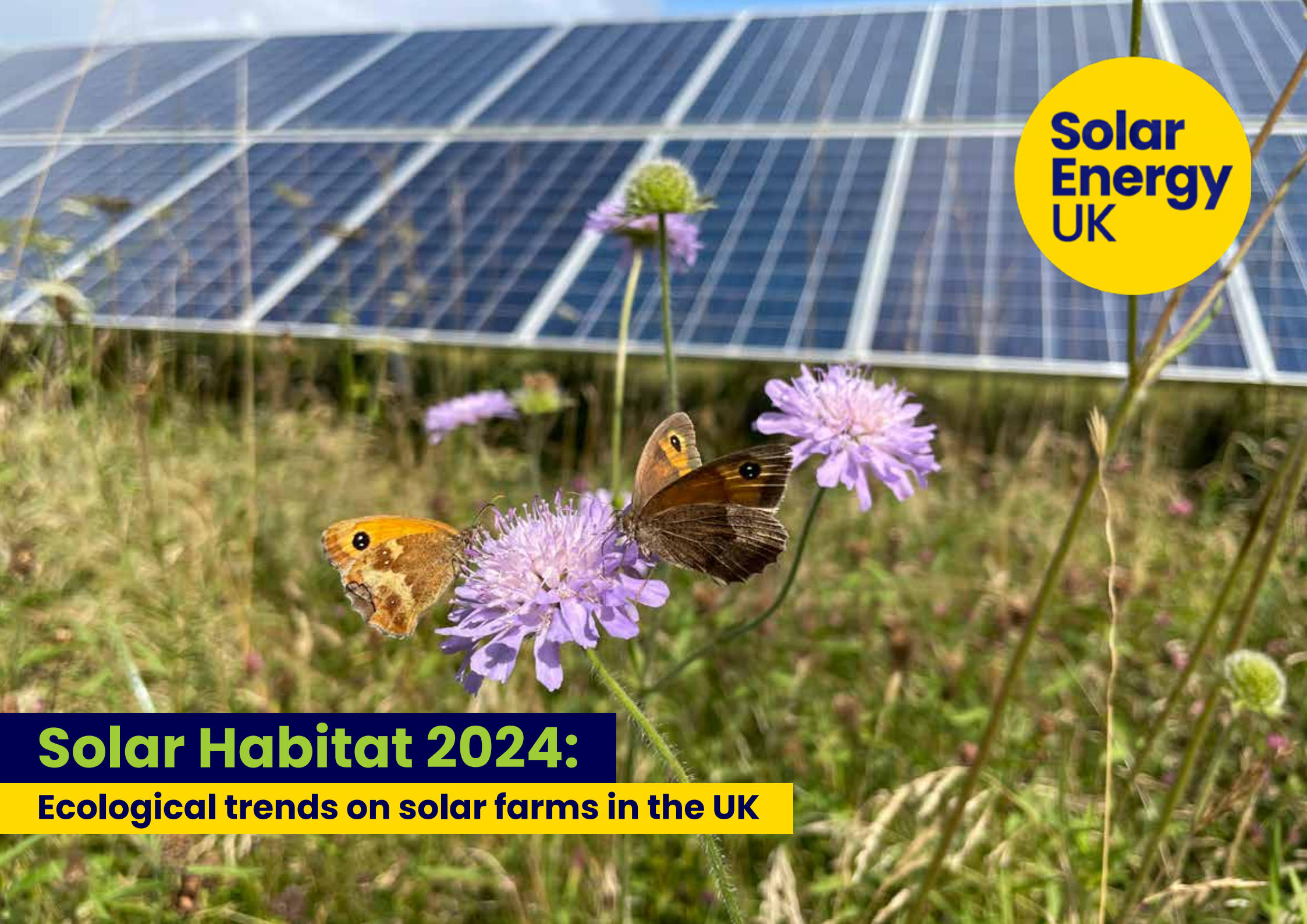
A.4 SEUK Solar Habitats 2024: ecological trends on solar farms in the UK



Solar Habitat 2024:

Ecological trends on solar farms in the UK

Solar Energy UK

is an established trade association working for and representing the entire solar and energy storage value chain. Solar Energy UK represents a thriving member-led community of almost 400 businesses and associates, including installers, manufacturers, distributors, large-scale developers, investors and law firms. Our underlying ethos has remained the same since our foundation in 1978 - to be a powerful voice for our members by catalysing their collective strengths to build a clean energy system for everyone's benefit. Our mission is to empower the UK's solar transformation.

Clarkson & Woods

provide a full range of ecological survey and consultancy services in respect to planning and land management. We are a leading consultancy in the survey, assessment and design of proposed and existing photovoltaic solar developments of all scales, from community owned to nationally significant projects.

We provide a range of services including survey and ecological assessment of solar and battery projects, development of bespoke management plans for solar farms and ecological monitoring of operational solar farms. We have a particular interest in furthering our understanding of the interactions between solar farms and ecology and have co-developed guidance in this area as well as embarking on pioneering research and collaboration with academic institutions.

Lancaster University

is a northern powerhouse of research excellence nested within a context of social and environmental sustainability. In the 2021 Research Excellence Framework, 91% of our research was independently rated as 'internationally excellent' or 'world leading'. We are ranked 7th in the UK for social and environmental sustainability.

The Energy Environment Interactions team focus on improving understanding of the implications of the energy transition on the environment, and how land use change for energy can be done in a way that delivers ecological, as well as climate, benefits. They sit within Lancaster Environment Centre, a 400-strong community of high-achieving students, world-class environmental researchers, government scientists and enterprises working together to address today's biggest environmental challenges, cutting across the physical and social sciences.

Wychwood Biodiversity

works with solar asset owners and managers to improve biodiversity on their land. Our team of ecologists is passionate about biodiversity and our core strengths lie in the planning, creation and management of bespoke wildlife habitats.

We've developed a range of services to support organisations at all stages of the project cycle, from pre-planning through to the long-term management of solar farms. We provide technical services to support planning applications, development of site management plans and ecological monitoring. We offer tried and tested means to achieve biodiversity gains for single sites or entire portfolios. We've worked with our project partners to produce guidance on biodiversity management for the entire solar industry.

Pyramidal Orchid, Harry Knight-Smith, British Solar Renewables

Contents

Front cover: Gatekeeper and Meadow Brown butterflies, Hollie Blaydes, Lancaster University

Glossary

Amber Listed – bird species with an unfavourable conservation status in Europe, whose population/range has declined moderately in recent times or has a historically declining population but has made a recent substantial recovery, rare breeders and species for which the UK holds internationally important populations, as categorised by the British Trust for Ornithology[1].

Arisings – vegetation cuttings often left in situ after management.

Birds of Conservation Concern – British Trust for Ornithology Amber or Red Listed species[1].

Biodiversity Net Gain (BNG) – an approach to development that aims to deliver measurable improvements for biodiversity by creating or enhancing habitats.

Botany – relating to plants.

Broadleaf – plant species with relatively broad, flat leaves.

BTO – British Trust for Ornithology.

Climber (plant) - a group of plants that use twining stems, tendrils or sticky pads to cling to surfaces.

Deciduous – plants which lose their leaves during the winter.

eDNA – Environmental DNA.

ESG – Environmental, Social and Governance.

Evergreen – plants that retain their leaves through the winter.

Ferns - a group of vascular plants that reproduce using spores and do not have seeds or flowers.

Graminoid – grasses, sedges and rushes.

Incidental (observations) - biodiversity sightings outside of structured surveys.

Injurious weed – a plant that can damage crops, habitats or ecosystems, as prescribed in the Weeds Act 1959.

Natural England – A non-departmental public body which advises on the natural environment in England, sponsored by the Department for Environment, Food & Rural Affairs.

NERC Act – Natural Environment and Rural Communities Act 2006.

NSIP - Energy projects over a specified generating capacity (50 MWac and above in England and 350MWac and above in Wales) which are of national significance and are determined at a national level.

Open mosaic habitat – habitat which establishes on previously developed land usually comprising sparse, patchy vegetation including stress tolerant plants.

Quadrat – a square plot of land marked out for botanical assessment.

Red Listed – bird species that are globally threatened, whose population/range has declined rapidly in recent times or that have declined historically and not shown recovery, as categorised by the British Trust for Ornithology[1].

Standard error (of the mean) - an indication of how different the population mean is likely to be from a sample mean.

Strings (of panels) – a row of panels that are wired together.

Sward – a grassland area.

Transect – a straight line through a habitat used to make measurements or observations.

Woody plants – plant species whose stems/roots are reinforced with wood (typically trees and shrubs).

Summary & highlighted findings

Until recently, monitoring of solar farms has not been applied consistently across the UK, making comparisons between sites difficult. In response, Solar Energy UK, in collaboration with Lancaster University, Clarkson & Woods and Wychwood Biodiversity introduced the standardised approach to monitoring biodiversity on solar farms. This standard enables the collection of comparable data, providing a clearer understanding of ecological trends on solar farms.

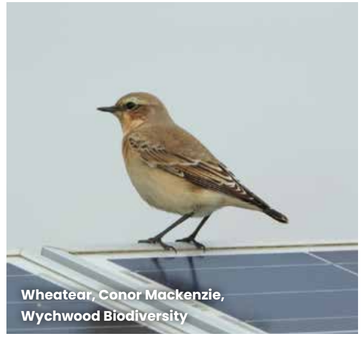
In May 2023, the first Solar Habitat report was released which highlighted ecological trends across 37 sites in the UK monitored in 2022 using the standardised methodology. This report continues that work, collating data from 87 sites monitored throughout 2023. The more than doubling of data in this year's report means trends between management approaches and biodiversity on solar farms can be identified with greater confidence.

This report provides a summary of botany, invertebrates, birds and mammals found on solar farms as part of structured surveys and incidental observations. The analysis indicates a positive relationship between specific management with greater biodiversity focus for biodiversity and plant and animal abundance. It also shows that the presence of diverse plant and invertebrate species has a positive impact on the abundance of bird species.

A direct comparison of the findings from 2022 to those from 2023 is not possible as only 17 sites were monitored in both years. However, over time, as data is accumulated from the same sites year on year, enabling the exploration of temporal trends, impacts of management practices over time and changes in biodiversity as sites mature. The standardised methodology will be reviewed periodically to incorporate feedback and make improvements.

The results of the standardised ecological monitoring set out in this and future annual publications of the Solar Habitat reports will help guide site managers, policymakers, ecologists, and local authorities and inform the effective management of operational sites.

The 87 sites surveyed in 2023 represent only a small proportion (6%) of the more than 1,400 solar farms operating in the UK[1]. It is anticipated that both the number of sites and contributing ecological consultancies will continue to grow year-on-year as the demand for monitoring and number of active sites continue to grow. With a greater data set and understanding of ecological trends, an ever-clearer picture of biodiversity on solar farms will emerge



Wheatear, Conor Mackenzie, Wychwood Biodiversity

Botany

- A total of 298 plant species were recorded across grasslands within 87 solar farms. On average, 27 species were recorded on each site, with a maximum of 52 found on one site.
- Within solar farms, species richness was generally greater in margin areas and those set aside for biodiversity.
- Across all monitored solar farms, on average more plant species were recorded at sites managed with a greater focus on biodiversity.

Invertebrates

- At least 47 invertebrate species and more than 3,000 individuals were recorded as part of structured surveys, including bumblebees, butterflies, moths, dragonflies and damselflies. On average, six species were recorded at each site, with a maximum of 15 observed at one site.
- Along transects, butterflies were five times more abundant than bumblebees. The most frequently recorded species was the meadow brown butterfly.
- The abundance and species richness of bumblebees and butterflies was greater along transects walked in solar farm margins and areas managed for biodiversity than between the rows of panels.

Birds

- A total of 99 bird species and almost 8,000 individuals were recorded across solar farms as part of structured surveys. On average, 25 species were recorded at each site, with a maximum of 47 found at one solar farm.
- Species recorded included 21 British Trust for Ornithology (BTO) Red Listed Species of Conservation Concern, as well as 25 BTO Amber Listed species.
- Higher numbers of bird species were associated with higher numbers of plant species across solar farms. Bird abundance was also greater with higher invertebrate abundance.

Mammals

- Incidental observations from 33 sites reported ten species of mammal present on solar farms, including rabbit, brown hare, weasel, field vole, common shrew, fox and badger. Fallow deer, muntjac deer and roe deer were also sighted.
- Brown hare were the most frequently recorded species, making up 40% of all observations.
- Targeted surveys would increase our understanding of mammals and solar farms.

Flower rich grassland, Hollie Blaydes, Lancaster University

Introduction

In May 2023 Solar Energy UK, in collaboration with Clarkson & Woods, Lancaster University and Wychwood Biodiversity, published the pilot Solar Habitat report highlighting ecological trends on solar farms in the UK.

Using the guidance set out in The Standardised Approach to Monitoring Biodiversity on Solar Farms, published in 2022, the pilot report summarised the results of ecological monitoring conducted at 37 operational solar farms in the UK. It looked at trends and observations to highlight how solar farms and their management can interact with local biodiversity.

This report continues that effort and collates the results of monitoring data from 87 solar farms undertaken by Clarkson & Woods and Wychwood Biodiversity throughout 2023. The report focuses on botany, invertebrates, birds and mammals found at solar farms and presents additional case studies looking at: growing shade tolerant grasses and wildflowers beneath panels, growing chamomile between panels and the use of environmental DNA (eDNA) to identify invertebrates. The report also revisits the application of Biodiversity Net Gain (BNG) on solar farms.

Solar Habitat has taken inspiration from Clarkson & Woods annual Solarview reports (2018 - 2020) which presented the results of ecological monitoring on solar farms undertaken by Clarkson & Woods solely. It is the intention of the authors to continue to report on the ecological monitoring on solar farms each year, encompassing data collected by ecological consultancies active across the UK, to build an ever-clearer picture of biodiversity on solar farms.

Monitoring ecology

Solar farms can contribute towards addressing the twin crises of climate change and biodiversity loss by reducing emissions and, with good management, encouraging biodiversity. While the first claim is widely accepted, it is important that claims about biodiversity are substantiated by ongoing observations.

Monitoring ecology is important for assessing the influence of solar farms on biodiversity. These include changes in the climate, growth in the scale and number of solar farms, changes in technology and changes in management practices, not to mention changes in policy and planning requirements.

The Standardised Approach to Monitoring Biodiversity on Solar Farms was published in 2022 by the authors of this report in order to be able to build a comparable data set across solar farms. The data will allow for a greater understanding of the influence solar farms can have on biodiversity and help to identify the impacts of management approaches.

The standardised methodology has been used for two consecutive years to monitor 37 sites in 2022 and 87 sites in 2023, beginning the process of building a credible evidence base, which will paint a representative picture of ecological trends on solar farms. Management styles vary greatly across operational solar farms. Though the trends identified from the analysis of data collected in 2022 and 2023 may be comparable, the data itself cannot be directly compared. This is because many sites go more than one year between monitoring and because the standardised methodology is designed to be achievable within a single day meaning that the time of year or weather on the day can impact results. However, over time, the accumulation of data collected from the same sites over multiple years, will enable the exploration of temporal trends, impacts of management practices over time and changes in biodiversity as solar farms age.

The results of the ecological monitoring set out in this, and future annual publications of the Solar Habitat reports, will help to guide policy, help ecologists and local authorities to appraise solar farm impacts and inform the management of operational sites. It is anticipated that the number of sites as well as the number of contributing ecological consultancies will continue to grow year on year as the demand for monitoring and number of active sites to continue growing.

Brown argus butterfly, Conor Mackenzie, Wychwood Biodiversity

Overview of solar farms

A total of 87 solar farms were monitored in 2023, with sites spread across England and a number located in Wales and Northern Ireland (Figure 1).

Most sites were located in England, with many in the south-west (30%), east (23%) and south-east (18%), which broadly matches the distribution of solar farms across the UK (Figure 1). Although the sample is generally representative of solar farms in England, it did not include any sites in the regions of London or the north-west. Just 3% of sites were located in Wales, compared to 11% at the national level. One site was located in Northern Ireland, and this was broadly similar to the distribution across the UK (1% vs. 2%). No solar farms in Scotland submitted monitoring data to this report in 2023, although 1% of sites across the UK are located there.

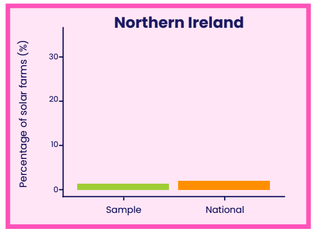
The age and size of solar farms in the Solar Habitat sample were generally representative of sites across the UK. The average age (years since grid connection) of sites in the sample was eight years but ranged from one to ten years old (nationally, the average age of operational solar farms is eight years, ranging from one to twelve years).

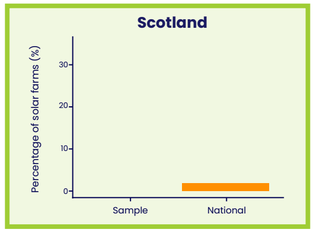
The generation capacity of solar farms included within the Solar Habitat sample based on megawatt (MW) output ranged from 1 MW to 70 MW, with an average of 10 MW. Again, this reflects the profile of operational sites nationally, which range from < 1 MW to 75 MW, with an average of 8 MW, based on solar farms that were operational as of October 2023[3].

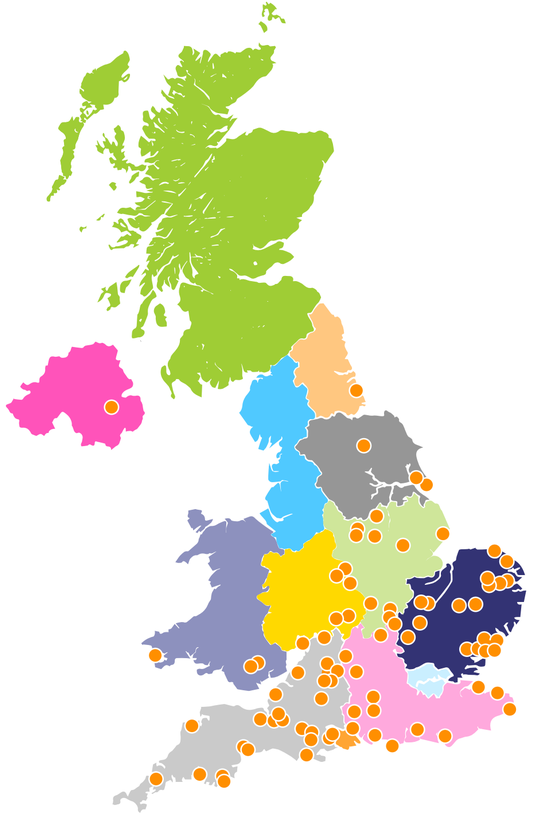
Figure 1: A map of the UK where England is split into regions and Wales, Scotland and Northern Ireland are represented at the country level. Orange points represent solar farms monitored in 2023. For each region/country, a bar graph shows the percentage of solar farms in (i) the Solar Habitat sample (n = 87) and (ii) at the national level (excluding sample sites; n = 1,004). National data were taken from the Renewable Energy Planning Database quarterly for October 2023.

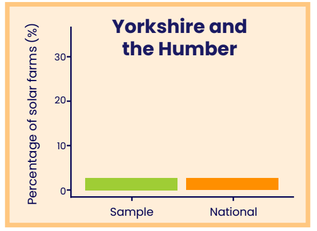
Region	Sample	National
South West	26	339
South East	16	158
East Midlands	11	126
East of England	20	111
Wales	5	110
West Midlands	4	56
North West	0	37
Yorkshire and the Humber	3	22
Northern Ireland	1	19
Scotland	0	14
North East	1	11
London	0	2

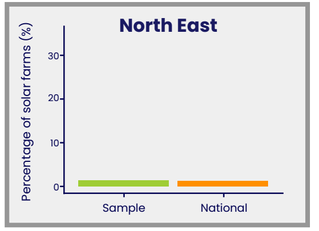
Table 1: Count of solar farms in the Solar Habitat sample and nationally, by region

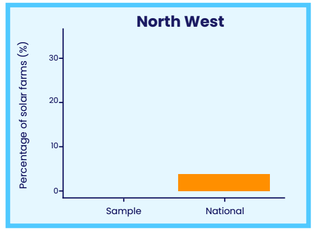


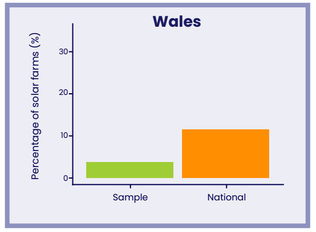


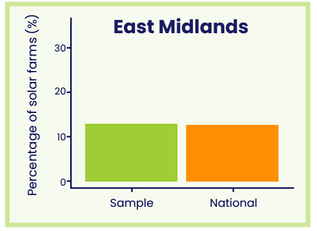


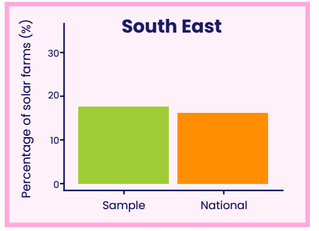


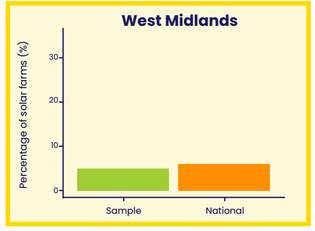


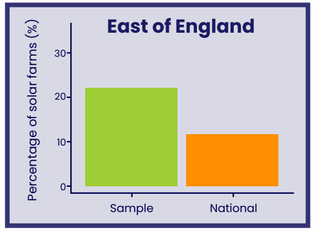


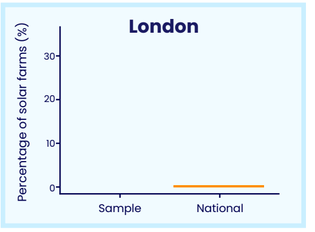












The solar farms monitored in 2023 were graded from one to five, depending on the sites focus on biodiversity (Table 2). Due to the lack of a national database management, it is not known if sites included in the Solar Habitat sample are representative of how sites are managed across the UK. Most sites in the sample were placed in Categories 2 (41%) or 3 (45%), indicating some consideration of biodiversity. Two sites in the sample were assigned to Category 1 (2%), suggesting management practices are aligned with optimal biodiversity enhancement and eight sites were assigned to Category 4 (9%), indicating less optimal management for biodiversity. Two sites were placed in Category 5 (2%); this encompassed a newly constructed site without any kind of management established as yet and an old coal storage site which comprised open mosaic habitat and so standard grassland management did not apply.

The lack of sites in Category 1 is likely linked to the current difficulties in cutting and collecting grass arisings related to both the requirement for specialist machinery and the issue of disposing arisings once collected. In contrast, very few sites fell into Category 4, as in most cases there will be a requirement for screening through woody planting as part of the planning application. In addition, field margins are often difficult to access for management and may become tussocky through lack of access rather than as an intentional biodiversity enhancement. Difficulties were encountered with some sites as they did not readily fit into a specific category. This is something being addressed in the revised standardised methodology.

Table 2: Site management categories as defined in the Standardised approach to monitoring biodiversity on solar farms

1	**Optimal management for biodiversity with conservation cutting/grazing and no herbicide use. Arisings are removed from the site. A range of habitats (e.g. meadows, tussocky grassland, woodland planting, hedgerow planting) are present.**
2	**Conservation cutting/grazing. Arisings are left on the site with signs of a thatch of vegetation in places. A range of habitats are present. Herbicides may be used, but spot treatment only.**
3	**Site cut or grazed throughout the season leading to short sward in the summer months. However, some other habitats present such as tussocky margins or planted hedgerows/woodland. Use of herbicides apparent (i.e. blanket spraying beneath panels).**
4	**Site cut or grazed throughout the season leading to short sward in the summer months. No other habitats (tussocky margins, new hedgerows/woodland). Use of herbicides apparent (i.e. blanket spraying of fields or beneath panels).**
5	**Site unmanaged or "other".**

Bee orchid, Hannah Montag, Clarkson & Woods

Botany

Botanical quadrats

A total of 1,504 botanical quadrats were assessed across the 87 solar farms. A mixture of 1 m x 1 m (75%) and 2 m x 2 m (25%) quadrats were used across sites, but as a statistical analysis showed no impact on survey results, it is thus possible to compare data collected from both quadrat sizes.

At most sites, five quadrats were assessed directly beneath the solar panels ("Under"; a total of 503 quadrats), five were assessed between the rows of solar panels ("Between"; 506 quadrats) and five were assessed outside the main footprint of the solar panels, in field margins or other areas within the security fencing ("Outside"; 387 quadrats). At some sites, additional quadrats were assessed in areas managed especially for biodiversity ("Biodiversity"; 94 quadrats). These locations were within an adjacent field to the solar farms. They were also managed in the same way as the solar farm sites, prior to construction ("Control", 15 quadrats). However, quadrats in control areas were excluded from analyses as they were outside of the solar farm itself and thus managed differently.

On average, 17 quadrats were assessed at each site (encompassing "Under", "Between", "Outside" and "Biodiversity" areas), ranging from 14 to 33. More quadrats tended to be surveyed at larger sites and those with more variation in habitat types.

Botanical species richness

Across all solar farms monitored in 2023, a total of 298 plant species were recorded, including 59 species of graminoid (grass, sedge or rush), 211 broadleaf plants and 28 other species including woody plants, climbers, ferns and agricultural species.

Yorkshire fog (*Holcus lanatus*) was the most frequently recorded graminoid species, present in more than half of all quadrats assessed (52%), followed by common bent (*Agrostis capillaris*) which was present in 35% of quadrats and red fescue (*Festuca rubra*), found in almost a third of quadrats (32%). Interestingly, these grasses are less associated with agricultural grassland which tends to comprise a monoculture dominated by ryegrasses, indicating that these solar farms are moving towards a more diverse grassland more typical of low intensity management[3].

Botany

The most frequently recorded broadleaf species were cut-leaved crane's-bill (*Geranium dissectum*), common dandelion (*Taraxacum officinale*) and creeping buttercup (*Ranunculus repens*), each present in 15% of quadrats. White clover (*Trifolium repens*) and cleavers (*Galium aparine*) were also common within solar farms, recorded in more than 10% of all quadrats. These species (apart from the cranes bill) are indicative of high nutrient levels and may be prevalent due to residual fertilizers which remain present in the soil. Soil nutrient levels are expected to reduce over time, which may result in a greater diversity of species.

The number of species recorded inside quadrats varied, ranging from one to 24, but with an average of five species (including all plant types). When considering the two main plant types (graminoid and broadleaf), species richness was greatest in "Biodiversity" areas (Figure 2). Interestingly, on average, more broadleaf plant species were recorded in "Biodiversity" and "Outside" quadrats, compared to graminoid species, whereas in "Between" and "Under" quadrats, there were more species of graminoids..

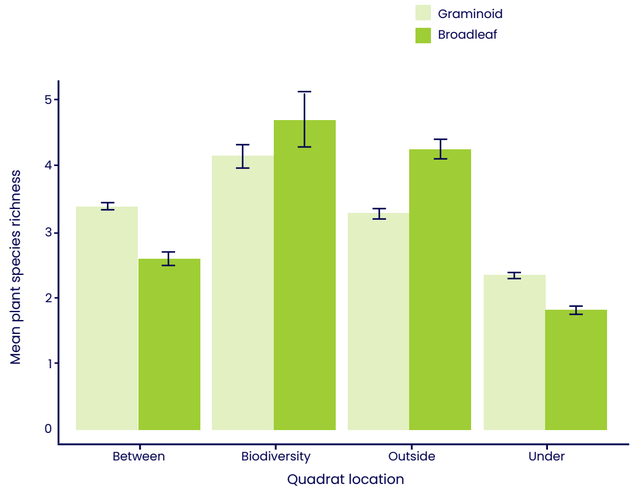


Figure 2: Mean species richness of graminoid and broadleaf plant species inside quadrats surveyed in different areas of the solar farm (n = 1,489, all quadrats excluding those in "Control" areas). Error bars represent standard error.

There was also variation in plant species richness at the site level. On average, a total of 27 plant species were recorded across each site, ranging from nine to 52. Variation in plant species richness is likely due to a combination of factors but solar farm management will be influential. Figure 3 shows how the number of plant species recorded on a site, on average, increases with solar park biodiversity management score. The two sites in Category 5 showed a high diversity of plant species due to the open mosaic habitat on one of the sites; this is a habitat that can be particularly ecologically important often with a wide variety of plant species present.

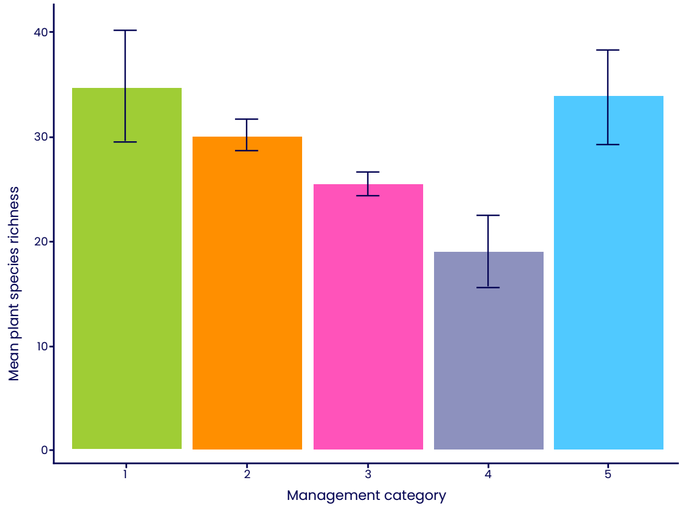


Figure 3: Mean plant species richness by management category (n = 87, all solar farms). Most sites were in management Category 3 (n = 39) or 2 (n = 36), with fewer in Categories 4 (n = 8), 1 (n = 2) and 5 (n = 2). Error bars represent standard error.

Under panel wildflower planting, Guy Parker, Wychwood Biodiversity

Case Study

Sowing shade tolerant grasses and wildflowers beneath panels – results of a trial on NextEnergy solar farms

Shading by solar panels, both from rain and sunlight, can create an environment that does not suit many grassland species, often resulting in bare ground that allows problem species, such as curled dock (*Rumex crispus*) and common nettle (*Urtica dioica*), to establish. As such, NextEnergy Solar Fund commissioned Wychwood Biodiversity to undertake trials into suitable vegetation to grow beneath solar panels with the intention of suppressing problematic weed species such as common nettle and creeping thistle, while encouraging biodiversity.

Trials were established to create a low growing sward comprised of species native to UK woodland and hedgerows, tolerant of both shade and drought. The sward aimed to provide ground cover sufficiently dense to prevent the establishment of problem species, while increasing biodiversity value. The trials were undertaken at two solar farms, Emberton Solar Park and Temple Normanton Solar Limited, and used different approaches.

Seeding beneath panels

The first trial was undertaken at Emberton solar farm beneath three solar panel rows. Two shade tolerant fine grass mixes were sown (*Emorsgate EG9 and EG29*), with common vetch (*Vicia sativa*), selfheal (*Prunella vulgaris*), bird's foot trefoil (*Lotus corniculatus*), bluebell (*Hyacinthoides non-scripta*), primrose (*Primula vulgaris*) and hedge bedstraw (*Galium mollugo*) added. Seed was sown into a clean seed bed as per the supplier's instructions.

The site was monitored annually during the growing season for three years. Several sown grass and herb species, mainly red fescue (*Festuca rubra*) and hedge bedstraw (*Galium mollugo*), established and covered nearly half of the trial area in Year 1, but in Year 2 they were overgrown by agricultural grasses, mainly cock's foot (*Dactylis glomerata*) and Yorkshire fog (*Holcus lanatus*), encroaching from the wider solar farm. By Year 3 the seeded grasses and herbs had all but disappeared and the agricultural grasses dominated.

The trial suggested that the fine grass and wildflowers were not fast growing and robust enough to establish ground cover and were consequently swamped by agricultural grasses. This is a common problem where soil nutrient levels are relatively high (the site was formerly an arable field) and agricultural grasses are present.

Planting plugs and bulbs beneath panels

The second trial took place at Temple Normanton solar farm and was designed using more vigorous wildflowers that were planted as plugs and pot-grown plants, rather than seeds. In total, 1,000 bulbs of four species of wildflower and 1,050 wildflower plugs of seven species were planted beneath four panel rows. In addition, 150 native ferns were planted, most of which were evergreen.

The trial has been monitored for 2 years during the growing season to date. Establishment of pot-grown plants after Year 1 was positive, with approximately 80% of all plants surviving. Of the four bulb species that were planted, wild garlic (*Allium ursinum*) and bluebell (*Hyacinthoides non-scripta*) established well, whilst lesser celandine (*Ficaria verna*) and wood anemone (*Anemone nemorosa*) appeared to have been less successful.

Most of the plugs of all seven species survived, except in two areas where the topsoil was very shallow (only two or three centimetres deep). Two cranesbill species, herb robert (*Geranium robertianum*) and hedge cranesbill (*Geranium pyrenaicum*), as well as red campion (*Silene dioica*) established most successfully and formed a dense ground cover. Five species of fern were planted (a mixture of evergreen and deciduous species) and wherever there was sufficient soil depth, established well.

The outcomes of both trials indicated that the planting of potted plants and plugs was more successful than seeding, with most species establishing well, and several species forming a dense ground cover. The results indicate that a number of wildflower species can establish in under-panel conditions, but the ability to cover ground effectively may be influenced by a site's soil conditions. The next steps include selecting the most successful species for wider trials and trialling seeding and planting at larger scales.

Ferns growing beneath solar panels, Guy Parker, Wychwood Biodiversity

Case Study

Growing chamomile between rows of solar panels – results of a trial on a NextEnergy solar farm

Emberton Solar Park Limited, which is an asset owned by NextEnergy Solar Fund, commissioned Wychwood Biodiversity to undertake a trial to investigate the feasibility of growing chamomile as a cash crop within a solar farm. This was supported by WiseEnergy, TWIG and the NEC Biodiversity team. The scale of this trial was intentionally small to enable management of the crop by hand rather than by mechanical means wherever possible. NEC recognised that this trial was unlikely to be financially viable at this scale, but it would nonetheless help to define logistical processes and constraints.

Annual or German chamomile (*Matricaria recutita*) was selected as the most suitable variety for this study. The crop was sown into a clean seed bed (as per seed supplier's instructions) approximately 50 m long by 2 m wide between the rows of solar panels in the northern field of the solar farm. The seed was sown in September 2020, weeded in April the following year and harvested in two sessions in June and July. Once harvesting was complete, the crop was recultivated and resown for harvesting the following year.

The trial suggested that it is possible to grow annual chamomile between the rows of solar panels in the southern United Kingdom and to attain commercial yields when grown in small plots. No irrigation was required, and the initial harvest equalled 3.7 kg of wet flower heads, equivalent to 370 kg per hectare which is within the commercial yield range for chamomile in Northern Europe[4]. Wet heads were air dried and placed into glass jars for use as chamomile tea called 'Meadow Sweet.'

Whilst the trial was successful at this scale, manual weeding and harvesting were labour intensive, where 0.25 person days were needed for weeding (equivalent to 25 days per hectare) and 0.75 person days were required for harvesting (equivalent to 75 days per hectare). If chamomile were to be planted at a larger scale, this would be uneconomical and mechanical options would need to be identified. There are also costs associated with ground preparation (mechanical clearance of grasses, cultivation, sowing) which are higher compared to an open field, as compact equipment must fit between the panel rows. Next steps should therefore focus on identifying the best options for scaling up production using mechanised means.

Chamomile between the rows of solar panels, Guy Parker, Wychwood Biodiversity

Injurious weeds

Particular attention is paid to plant species categorised as "injurious weeds" under the Weeds Act 1959. Common ragwort (*Jacobaea vulgaris*), broad-leaved dock (*Rumex obtusifolius*), curled dock (*Rumex crispus*), creeping thistle (*Cirsium arvense*) and spear thistle (*Cirsium vulgare*) are all injurious weeds. These species are generally more aggressive colonisers that can lead to a reduction in species richness within a grassland sward. In agricultural land, these species can also damage crops or may be harmful to grazing animals, if allowed to proliferate. However, injurious weed species provide important food sources for invertebrates and are highly attractive to many bees, butterflies and moths.

Injurious weeds were recorded on the majority of solar farms (82%) and within 22% of all quadrats. The most frequently recorded injurious weed species were creeping thistle, recorded in 13% of quadrats, followed by broad-leaved dock (6% of quadrats), common ragwort (4% of quadrats), curled dock and spear thistle (each in 2% of quadrats).

Under the Weeds Act 1959, if injurious weeds are spreading to adjacent agricultural land, they need to be managed. However, injurious weeds do not require active control if they are not spreading or causing maintenance issues. As such, injurious weeds that are at lower density and considered to be under control may be left within a solar farm to benefit invertebrates and birds. By undertaking regular monitoring of sites, it is possible to detect emerging problems and identify specific areas within a solar farm which may require management.

Six spot burnet moth on common ragwort, Hollie Blaydes, Lancaster University.

Invertebrates

Common blue butterfly, Hannah Montag, Clarkson & Woods

Transect walks

Transects focusing on bumblebees and butterflies were walked on 73 solar farms (84% of sites). A total of 794 transects were walked across all sites, either between the rows of solar panels ("Between"; 382 transects) or in margins, open areas or areas managed for biodiversity ("Outside"; 371 transects). The locations of the remaining 41 transects were not specified ("Unknown"). Transects were 100 m in length and on average, eleven were walked on each solar farm, ranging from five to 19.

Along all transects, a total of 3,088 individual invertebrates were counted and there were around five times more butterflies recorded than bumblebees overall (2,589 individual butterflies compared to 499 individual bumblebees). A total of 25 butterfly species were observed; the meadow brown (*Maniola jurtina*) was by far the most abundant (a total of 1,386 observations), followed by the gatekeeper (*Pyronia tithonus*, 248 observations) and marbled white (*Melanargia galathea*, 243 observations). In comparison, at least six bumblebee species were recorded, where the red-tailed bumblebee (*Bombus lapidarius*; 186 observations) and white-tailed bumblebee (*Bombus lucorom*; 94 observations) were observed most frequently. The majority of bumblebee and butterfly species recorded along transects were relatively common, although the small heath butterfly (*Coenonympha pamphilus*), a Species of Principal Importance under the NERC Act, was observed along transects on ten sites.

On average, one bumblebee or butterfly species and four individuals were recorded along a transect (per 100 m). However, this differed depending on where the transect was located. For example, species richness in "Outside" areas was approximately double that of "Between" areas, on average (Figure 4). Moreover, three times as many bumblebees and butterflies were counted in "Outside" areas, compared to between the panel strings ("Between"; Figure 4). This is likely because "Outside" areas tend to be managed less intensively and may offer more feeding resources to invertebrates. The "Outside" areas are also often on the outskirts of solar farms and may also be closer to other habitats such as hedgerows, which provide resources and shelter to many species.

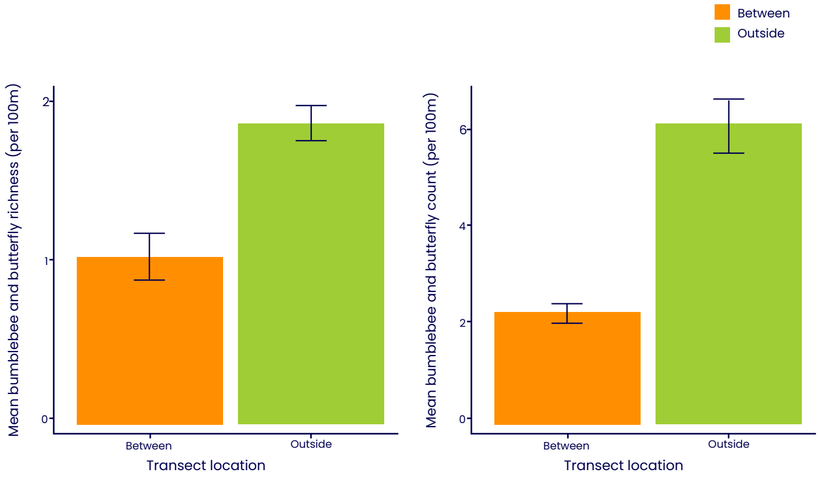


Figure 4: Mean bumblebee and butterfly species richness per 100 m (left) and mean count per 100 m (right) along transects walked between the panel strings ("Between"; n = 382) and in areas away from solar panels ("Outside"; n = 371). Error bars represent standard error.

Invertebrates

Scarce chaser dragonfly, Conor MacKenzie, Wychwood Biodiversity

Other invertebrate groups were also recorded along transects, including moths (six species), odonates (damselflies and dragonflies; five species), other bee species (three species), hoverflies (one species) and hornets (one species). Considering all groups, species richness varied across solar farms, ranging from zero to 15 species, with an average of six. Variation is likely due to a combination of factors, including site management, and it was found that species richness was greatest on solar farms that had a high biodiversity management score (those placed in Category 1; Figure 5). There was also a positive relationship between plant and invertebrate species richness, indicating that solar farms with more plant species can support a greater diversity of invertebrates (Figure 6).

It is also important to note that the conditions in which transects were walked are likely to have a large impact on the invertebrates recorded. Surveys should be undertaken in warm, dry and still weather when invertebrates are most active and transects walked in suboptimal conditions may underestimate invertebrate abundance or species richness. However, due to inflexibility in survey schedules it is not always possible to walk transects in optimal conditions and therefore biodiversity could be underestimated in some cases.

Incidental observations

Alongside transect walks, 2,809 invertebrates were counted as part of incidental observations on solar farms, where ecologists recorded invertebrates they saw whilst undertaking other surveys. At least 83 species were identified, including six bumblebee species, 24 butterfly species, nine moth species, 17 odonates (dragonflies or damselflies) and various grasshoppers, crickets, beetles, flies, hornets, ladybirds and spiders. Notable species included the Norfolk hawker dragonfly (*Aeshna isoceles*), which is a protected species listed as Endangered, and scarce chaser dragonfly (*Libellula fulva*) which is listed as Near Threatened.

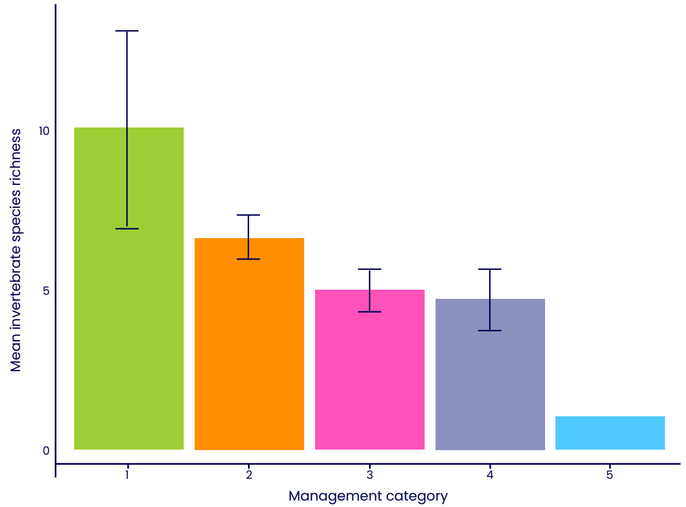


Figure 5: Mean invertebrate species richness by management category (n = 73, including only solar farms where invertebrates were recorded along transects). Most sites were in management category 3 (n = 34) or 2 (n = 27), with less in categories 4 (n = 8), 1 (n = 2) and 5 (n = 2). Error bars represent standard error.

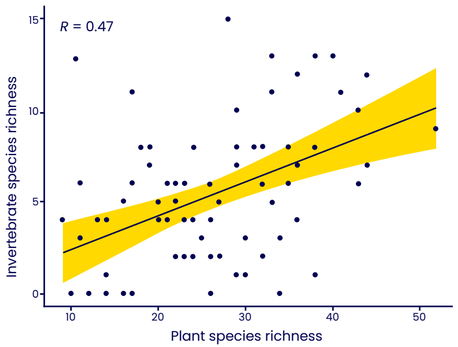


Figure 6: The relationship between plant and invertebrate species richness on solar farms (n = 73, including only solar farms where invertebrates were recorded along transects). The black line represents the trend line and shaded areas represent 95% confidence intervals. The R value is the Pearson correlation coefficient.

Birds

Common buzzard, Harry Knight-Smith, British Solar Renewables

Bird surveys

A total of 67 structured bird surveys were undertaken across solar farms. Bird surveys were conducted on 59 solar farms, where most sites had one survey undertaken (86%), but others had two (undertaken during different months; 14%). The survey methodology included a walked transect across the site so that all habitats were accessed within 50 m; all birds heard and seen were recorded with notes on their behaviour (including singing, foraging and flying over).

A total of 99 bird species were recorded during structured surveys, of which the majority were BTO Green Listed (47%), but a notable proportion were Amber (25%) or Red (21%) Listed Species of Conservation Concern. Six species had no status, representing those not categorised by the BTO as they are non-native (such as game birds: 6%). In terms of abundance, 7,886 individual birds were counted as part of structured bird surveys. On average, 134 individual birds were counted on a solar farm, but there was much variation, with counts ranging from 1 to 389 individuals.

The most abundant species was the wood pigeon (*Columba palumbus*, 974 individuals), an Amber Listed Species, recorded on almost all solar farms where bird surveys were undertaken (56 sites; Figure 7). The most abundant Red Listed Species was the starling (*Sturnus vulgaris*, 658 individuals), recorded at 18 sites (Figure 7). Skylarks (*Alauda arvensis*) were the Red Listed Species recorded across the highest number of sites (71%), with 279 individuals observed across all bird surveys (Figure 7). Whilst not assessed in terms of conservation status, a notable species recorded at one solar farm was the common rosefinch (*Carpodacus erythrinus*). This species is a scarce visitor to the UK, with very few breeding records, and is a Schedule 1 Protected Bird under the Wildlife and Countryside Act 1981.

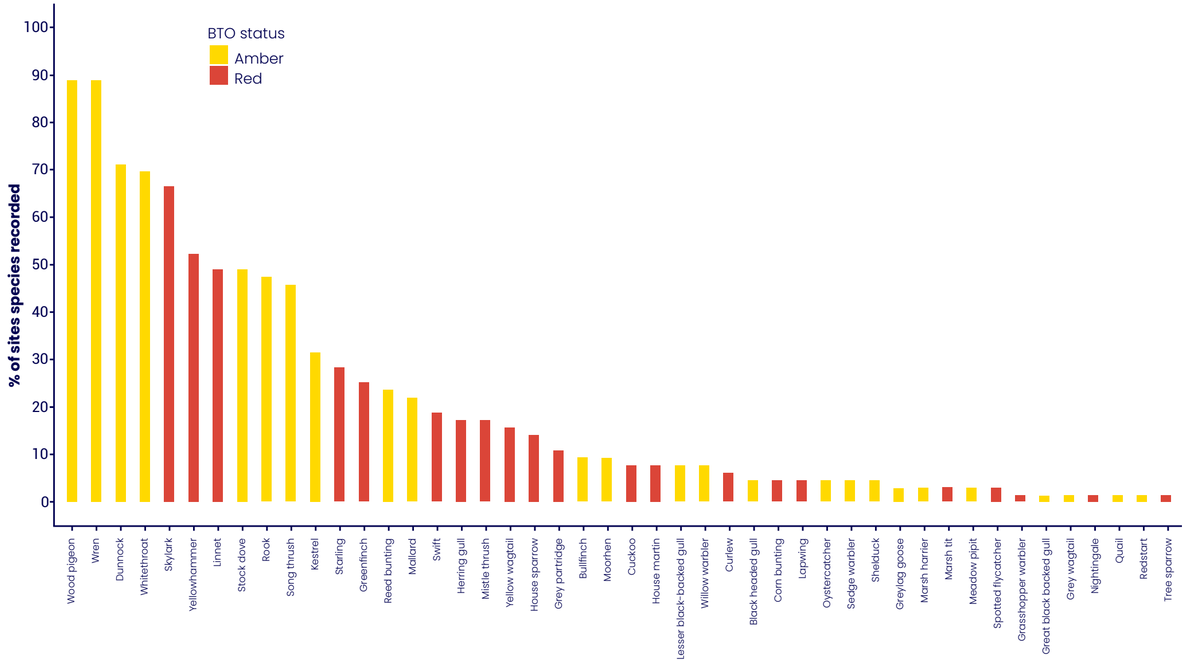


Figure 7: The percentage of sites each BTO Amber or Red Listed bird species was recorded (n = 59, including only solar farms where structured bird surveys were undertaken), arranged by most to least frequently recorded.

On average, 25 bird species were recorded during surveys at each solar farm, but this varied from one to 47. As with invertebrate biodiversity, variation in bird species richness is likely due to several factors including characteristics of the solar farm itself, the location of the site and weather conditions. Whilst no clear patterns between bird biodiversity and site management was directly found, there were positive relationships between bird species richness and plant species richness, as well as a positive relationship between bird abundance and invertebrate abundance across solar farms (Figure 8).

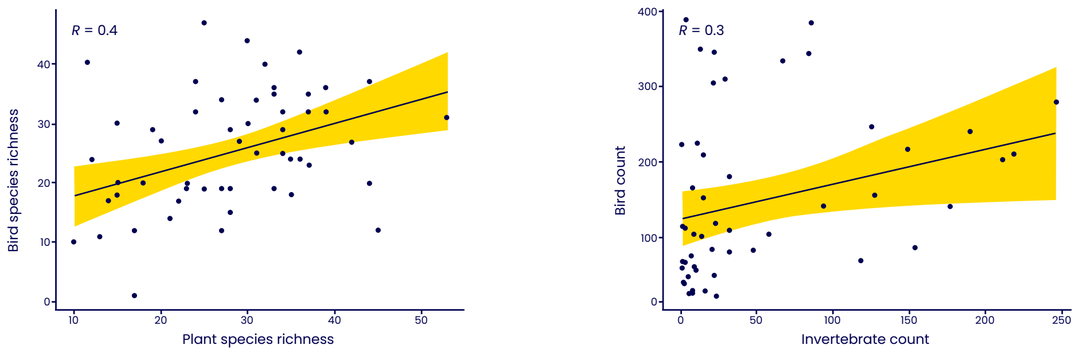


Figure 8: On the left, the relationship between plant and bird species richness. On the right, the relationship between invertebrate and bird count (abundance; n = 59, including only solar farms where structured bird surveys were undertaken). The black line represents the trend line and shaded areas represent 95% confidence intervals. The R value is the Pearson correlation coefficient.

Ground nesting birds

Skylarks continue to be recorded regularly on solar farms, however, no records of nesting on solar farms have been observed yet[5]. One bird survey conducted in 2023 focussed on nest searching on a site where skylarks were observed. No nests were found, however, a bird was observed regularly collecting food from within the solar farm then flying to an adjacent arable field, indicating that the solar farm offered a preferred resource for foraging by skylarks.

Other ground nesting bird species recorded included oystercatcher (*Haematopus ostralegus*) on three sites, where individuals were observed foraging or flying over the solar farm. Meadow pipit (*Anthus pratensis*) were also observed on two sites and breeding behaviour was observed at one solar farm.

Incidental observations

Incidental observations of birds also took place at 41 solar farms (sometimes alongside structured bird surveys, but also at sites without bird surveys). As part of incidental observations, 1,621 individual birds made up of 65 species were recorded across all solar farms. In total, twelve Red Listed Species of Conservation Concern and 17 Amber Listed species were observed. Birds of Conservation Concern recorded as part of incidental observations, but not structured surveys, included Dartford warbler (*Curruca undata*; Amber Listed) and tree pipit (*Anthus trivialis*; Red Listed).

Skylark, Conor MacKenzie, Wychwood Biodiversity

Brown hare, Harry Knight-Smith , British Solar Renewables

Mammal observations

While conducting other surveys, ecologists also noted down any mammals they observed on solar farms, or saw signs of (such as scat, footprints and feeding remains). Mammal observations were made on 33 sites (38%), with ten species observed or signs of their presence recorded. These included badger (*Meles meles*), fox (*Vulpes vulpes*), brown hare (*Lepus europaeus*), rabbit (*Oryctolagus cuniculus*) and weasel (*Mustela nivalis*), along with small mammals including common shrew (*Sorex araneus*) and field vole (*Microtus agrestis*). Fallow deer (*Dama dama*), muntjac deer (*Muntiacus reevesi*) and roe deer (*Capreolus capreolus*) were also sighted.

The most frequently observed species was the brown hare, making up 40% of observations. This is a Species of Conservation Concern which thrives on solar farms; on one site visited large groups of brown hares were recorded, with the site effectively being grazed by this species.

On sites where mammals were observed, their presence has likely been underestimated given that some species are less active during the daytime, many small mammal species are less visible and targeted surveys were not conducted. Future surveys may include more targeted approaches such as small mammal trapping, camera traps and eDNA.

Bats and solar farms

Recently published research has shown solar farms may influence bat activity, although the reasons are not understood. More information and research is needed on how bats interact with solar farms and this will, hopefully, become a focus of future monitoring and management of operational sites.

Case Study

Using eDNA to identify vertebrates on solar farms – results of a trial on a Gridserve solar farm

eDNA has been used in the past to detect the presence of individual species such as the great crested newt (*Triturus cristatus*) in ponds. However, it has recently become possible to extract eDNA for multiple species and other biodiversity groups from water and even soil and air samples including mammals, birds and reptiles.

Gridserve commissioned Wychwood Biodiversity to undertake biodiversity assessments of four solar farms and at one site, requested the sampling of a pond to assess the technique.

eDNA was collected in the field and the samples were analysed in the laboratory for the presence of all vertebrates. The results provided the following details:

- Number of species: 12 (three amphibians and seven birds)
- Identity of species: 100% of species were identified to taxonomic Order; 58% of species were identified to Genus.
- Taxonomic relatedness was displayed as a dendrogram (Figure 9)
- Number of threatened species: none
- Presence of invasive species: none

Information provided by eDNA is valuable as it allows the detection of cryptic species (species which are hard to detect conventionally), such as polecat (*Mustela putorius*), harvest mouse (*Micromys minutus*) and otter (*Lutra lutra*). This technology will also be useful in identifying invasive species and Red Listed species, both of which are relevant to Environmental, Social and Corporate Governance (ESG) reporting and the ongoing management of solar farms.

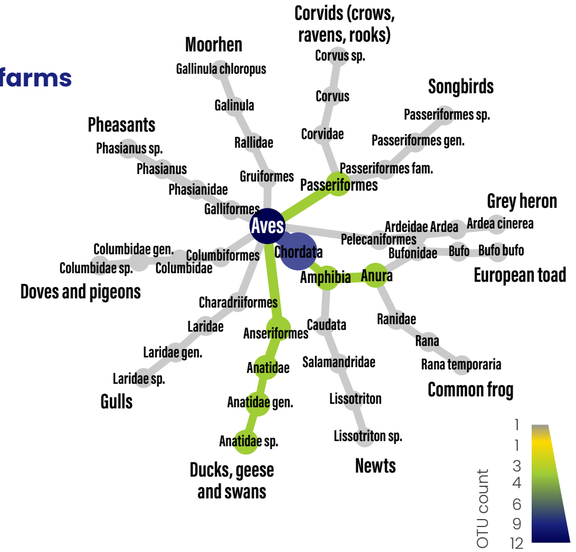


Figure 9: A dendrogram providing a tree-of-life view of the vertebrate species detected using eDNA and their taxonomic relationship. Names on the same branch are more similar than those on different branches and the dendrogram is structured with the highest taxonomic rank in the centre. Branch colour indicates the number of species along a scale, from grey which represents very few species to blue, representing many species.

Biodiversity Net Gain on solar farms

Diverse easement, Hannah Montag, Clarkson & Woods

Biodiversity Net Gain (BNG) is a policy mechanism to stimulate the creation and improvement of natural habitats and biodiversity. BNG enforces a measurably positive impact ('net gain') of all new developments on biodiversity, with a focus on on-site benefits, although credit trading will enable off-site improvements. From 12 February 2024, BNG is mandatory for new planning applications, including solar farms, which will need to deliver at least a 10% increase in relation to the pre-development biodiversity value of the development granted permission. Implementation for Nationally Significant Infrastructure Projects is planned for November 2025.

Solar farms offer the potential to manage land for BNG well above the 10% requirement, particularly as most developments are sited on previously intensively managed agricultural land. During the construction and operational phases of the solar farm, there can be minor habitat loss due to the creation of access tracks, substations and mounting frames. However, the overall infrastructure footprint of a solar farm can be as little as 2% of the total land area, with the panels oversailing around 40% of land within the fenced boundary, on average.

BNG can be calculated by an ecological consultant by comparing the baseline Biodiversity Units (derived from the UK Habitat Classification and taking into account habitat size, condition, distinctiveness, and location) measured in the pre-development state, with results that would be expected once the project is operational, along with any ecological enhancements included. Previous use of the metric for BNG on solar farms has proven challenging due to poorly understood impacts of panel structures on the habitats below.

Research relating botanical datasets to the BNG metric and UK Habitat definitions in different areas of solar farms is ongoing, led by Clarkson and Woods, Natural Power and Wychwood Biodiversity. The outcomes from this research will provide an evidence base and insight relevant to solar farm planning applications, including highlighting some of the wider factors that influence vegetation establishment. Natural England is using the outcomes of this research to produce a case study for applying BNG to solar farm developments, which will be published in 2024.

Several asset owners are now using the BNG metric to assess their "biodiversity stock" in a standard, measurable way; a calculation can be made based on an existing solar farm to assess its current ecological value and explore ways in which this can be increased.

Wildflowers, Hannah Montag, Clarkson & Woods

Tree planting on solar farm, Henry Sturgess, Clarkson & Woods

Case Study

Foresight JLEN Environmental Assets Group portfolio - biodiversity study

Foresight JLEN Environmental Assets Group, a sustainability-led investment fund, commissioned Clarkson and Woods to undertake a biodiversity assessment of ten of their ground-mounted solar farm assets in 2023. The aim was to use the Biodiversity Net Gain (BNG) metric to measure the baseline units on these sites, consider potential options for ecological enhancements and calculate their potential BNG uplift.

It was found that measures could be introduced to significantly increase the habitat value on all ten sites. The anticipated biodiversity increase ranged from 8 to 110%, with significant delivery of both Habitat and Hedgerow Units – the "currency" of the BNG system, which can be utilised in trading or habitat banking.

Figure 10 shows one of the sites within the study, Pylle solar farm, where the habitat survey revealed 60.54 Habitat Units and 26.22 Hedgerow Units within the site. Recommendations that could potentially increase the number of units included enhancement of existing Modified Grassland to a higher condition, new pond and wetland area creation within a low-lying part of the field, tree planting with locally appropriate species, enhancement of existing hedgerows and new hedgerow planting. The calculations resulting from these enhancements showed a potential uplift of 13.97 Habitat Units and 10.65 Hedgerow Units; a total net gain of 23% for habitats and 41% for hedgerows.

If such recommendations are accepted, a legal agreement would need to be secured and a finalised Habitat Management and Monitoring Plan prepared and submitted to the relevant authority to secure the BNG units and to trade them. The site would also need to be registered with Natural England.

Figure 10: Habitat enhancements proposed at Pylle solar farm.

Looking ahead

Walnut orb weaver, Hannah Montag, Clarkson & Woods

The Solar Habitat report will be issued annually, presenting findings from ecological monitoring conducted in the preceding year.

It's not possible to directly compare findings from 2022 to those from 2023, as only 17 sites were monitored in both years. One of the reasons for this is that monitoring doesn't always happen annually. Another is that the key components of the current methodology are designed to be achievable within a single day, so the time of year or even the weather on the day can have a marked impact on the results. However, the accumulation of data collected from the same sites over multiple years will enable the exploration of the trends and impacts of management practices over time.

While the number of solar farms monitored using the standardised approach increased by 50 sites from 2022 to 2023, the sites surveyed remain only a small number of those operational across the UK. It is anticipated that the methodology will be used by more ecological consultancies and applied across more solar farms in future years as demand for monitoring grows and the solar sector expands.

The standardised methodology has been revised in line with feedback and evolving approaches, as well as the experience of its use in the field over two years. Alongside the partners on the project, environmental NGOs and ecological consultancies have been involved in updating the standardised methodology and in line with feedback an update will be will be released in 2024

In an effort to improve the methodology, authors of the report have been looking at how the industry can better collaborate with voluntary citizen science projects monitoring biodiversity on operational solar farms. This may include multi-day bird and butterfly surveys carried out by the volunteers of environmental NGOs.

A survey form for collecting monitoring data using the standardised approach has also been produced. This was still in development at the time of publication.

To access the latest information, including The Standardised Approach to Ecological Monitoring on Solar Farms and monitoring form please scan the QR code or go to solarenergyuk.org.

Please visit solarenergyuk.org/resource/solar-energy-uk-guidance-a-standarised-approach-to-monitoring-biodiversity/

Or scan the QR code to access this guidance.

Case Study

Using Wild Power's Solar Biodiversity Scorecard to assess and improve solar farm biodiversity

Wild Power is an independent third-party certification standard for biodiversity and natural capital enhancements on solar farms. It is built around a 23-point scorecard and accompanying technical notes on biodiversity management.

Wild Power's scorecard combines on-site and desktop activities to provide a holistic assessment of biodiversity on solar farms. It incorporates assessment of site and surrounding areas, species, habitat and guild management, connectivity and management systems in place for biodiversity, the degree of site monitoring, photo documentation, fulfilment of obligatory and voluntary biodiversity commitments, ecosystem services and research contributions (Figure 11).

The scorecard can be used to align site design, construction, and management with best practise in natural capital, and scores allow comparison and benchmarking across projects, offering a way to set and communicate standards via a score-based gold/silver/bronze certification scheme (Figure 12).

Wild Power's scorecard has been used to identify, scope and prioritise both on- site and desktop-based opportunities for biodiversity enhancement on solar farms. Actionable options for improving biodiversity and Wild Power scores include creation and management of valuable native habitats, and strengthening ecological connectivity. Such measures typically require material investment of time and capital and are most easily addressed at site design/planning/construction stages. Further actionable areas for improving site Wild Power scores include site documentation, microhabitat provision such as log piles, bat and bird boxes (often the simplest post-construction on-site action for biodiversity enhancement), fulfilment of obligatory planning commitments and voluntary actions to improve habitat,

online assessment of ecosystem service potential, data submission for research and comprehensive photo documentation.

Wild Power certification provides a basis for benchmarking and communicating investment in solar farm biodiversity. Wild Power certification is a way to demonstrate commitment to biodiversity, creating value in stakeholder management, fund raising, and compliance, and providing monetisation opportunities for projects which comply with Wild Power standards via the development of biodiversity-rich consumer electricity products.

Wild Power completed its beta testing phase in 2023, during which time the scorecard was used to assess 39 sites in the UK from community- to commercial-scale solar farms (Figure 11). Wild Power's certification scheme is due to launch in 2024, with sites currently working towards achieving the UK's first Wild Power certification.

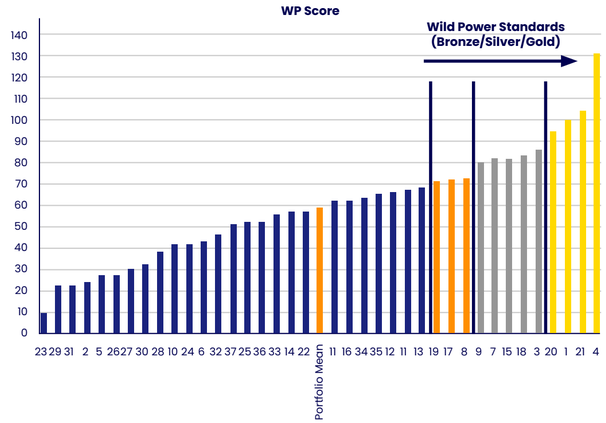
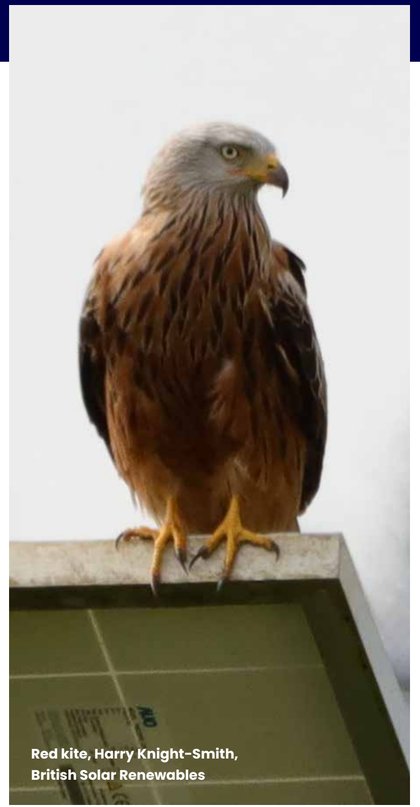


Figure 11: The score distribution for 39 solar farms assessed using the Wild Power scorecard during the beta testing phase.

Category	WP Scorecard item(s)	Notes	Possible uplift		
			Site X	Site Y	Site Z
Score at survey			X	Y	Z
Delta to WP status			+ ●	+ ●	+ ●
Site documentation	1–7	Max 19 pts	+ ●	+ ●	+ ●
Microhabitat provision	11	1/2 pt per microhabitat, max 10 pts	+ ●	+ ●	+ ●
Current penalty for missed planning commitments	15	-2pts per missed commitment	+ ●	+ ●	+ ●
Online assessment of ecosystem service potential	18	+5 pts	+ ●	+ ●	+ ●
Photo documentation	19–20	Max 14 pts, subject to site details	+ ●	+ ●	+ ●
Data submission for research	23	+3pts	+ ●	+ ●	+ ●
TOTAL ACHEIVABLE UPLIFT			+ ●	+ ●	+ ●
ACHEIVABLE SCORE AND WILD POWER STANDARD			+ ●	+ ●	+ ●

Figure 12: Example scorecard results provided by Wild Power that includes an action plan that identifies opportunities to improve biodiversity. Opportunities range in scope, investment and time requirement and can be used to produce workable and costed biodiversity action plans.



Red kite, Harry Knight-Smith, British Solar Renewables

Contributors

We would like to thank the following companies for contributing monitoring data and case studies:

NEXTENERGY CAPITAL

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octopus energy generation investing for impact

References

1. bto.org/sites/default/files/publications/bocc-5-a5-4pp-single-pages.pdf
2. Based on data provide by Solar Media Market Research.
3. National level data came from the Renewable Energy Planning Database which lists renewable energy projects in the UK, including ground mounted solar farms, allowing comparison between our sample and those across England, Wales, Scotland and Northern Ireland.
4. Yield of commercial chamomile ranges from 300-500lb per acre / 337-561 kg per Ha in Northern Europe (Foster, S. 1993. Herbal Renaissance. Gibbs-Smith Publishers, Salt Lake City, UT).
5. clarksonwoods.co.uk/wp-content/uploads/PDF/HF%20from%20InPractice117_Sep2022-9.pdf

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