Heckington Fen Solar Park

EN010123

Interrelationship with other Nationally Significant Infrastructure Projects

Applicant: Ecotricity (Heck Fen Solar) Limited

Document Reference: ExA.IRReport-D5.V3

Pursuant to: APFP Regulation 5(2)(q)

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Planning Act 2008

INTERRELATIONSHIP WITH OTHER NATIONALLY SIGNIFICANT INFRASTRUCTURE PROJECTS

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Interrelationship with other Nationally Significant Infrastructure Projects

Heckington Fen Solar Park

Development Consent Order Application for Ground Mounted Solar Panels, Energy Storage Facility, below ground grid connection to Bicker Fen Substation and all Associated Infrastructure Works.

Land at Six Hundred Farm, Six Hundreds Drove, East Heckington, Sleaford, Lincolnshire.

On behalf of Ecotricity (Heck Fen Solar) Limited.

Date: February 2024 | Pegasus Ref: P20-2370 PINS Ref: EN010123 |

Contents.

1. Introduction

1.1. The Heckington Fen Solar Park Development Consent Order (DCO) application is for the construction, operation (including maintenance), and decommissioning of a ground mounted solar photovoltaic (PV) electricity generation and energy storage facility (hereafter referred to as "the Energy Park"), cable route to, and above and below ground works at, the National Grid Bicker Fen Substation (hereafter referred to as "the Proposed Development" (inclusive of Energy Park)) on land at Six Hundreds Farm, Six Hundreds Drove, East Heckington, Sleaford, Lincolnshire.

1.2. The purpose of this document is to provide information on the interrelationships between the Heckington Fen Solar Park and Nationally Significant Infrastructure Projects (NSIPs) within close proximity of the Proposed Development. This report will be a live document during Heckington Fen Solar Park's Examination and will be updated at each Deadline (as required), or confirmation provided there is no change to the previous version.

1.3. Whilst recognising that the focus of the Rule 6 brief, at Annex C and G (PD-009), is targeted towards solar NSIP projects, for completeness, the Applicant has also considered two large-scale Town and Country Planning Application (TCPA) solar farm schemes within close proximity to the Proposed Development as agreed at Issue Specific Hearing 2 on the 20th September 2023.

1.4. This document has been prepared in response to the Rule 6 Letter issued by the Examining Authority on the 21st July 2023, to aid in the Examination of the DCO application for the Proposed Development. Annex C of the Rule 6 letter identified six proposed solar energy NSIP schemes within the region including:

- Cottam Solar Project,
- Gate Burton Energy Park,
- West Burton Solar Project,
- Mallard Pass Solar Project (these four projects aforementioned have been submitted for Examination),
- Tillbridge Solar Project (yet to be submitted for Examination and expected to be submitted in Q1 2024), and
- Beacon Fen Energy Park (yet to be submitted for Examination and expected to be submitted in Q2/Q3 2024).

1.5. The Rule 8 letter, published on 26 September 2023, identified two further schemes:

- Springwell Solar Farm (yet to be submitted for Examination and expected to be submitted in Q2 2024); and
- Fosse Green Energy (yet to be submitted for Examination and expected to be submitted in Q4 2024).

1.6. The two TCPA solar farm schemes identified to include in this document at Issue Specific Hearing 2 are outlined in Section 2.

1.7. This document is supported by:

- **Figure 1.1 – Other proposed projects with potential cumulative interrelationship effects in Lincolnshire**
- **Figure 1.2 – Heckington Fen Solar Park and Beacon Fen Energy Park interrelationship layout plan**
- **Figure 1.3- Cumulative screened zone of theoretical visibility- Heckington Fen Solar Park and Beacon Fen Energy Park**
- **Appendix 1 - Initial assessment of other projects with potential cumulative effects, including details of consenting, construction and operation timetables**
- **Appendix 2 - Cumulative Land and Agricultural Land Note.**

1.8. This document forms part of a suite of documents supporting a DCO application under Section 37 of the Planning Act 2008 to the Secretary of State for Department for Energy Security and Net Zero (DESNZ) for the Proposed Development on behalf of Ecotricity (Heck Fen Solar) Ltd (hereafter referred to as the "Applicant"). If made, the DCO would grant consent for the Applicant to develop the Proposed Development.

1.9. At Deadline 3, this document was updated to ensure it is in alignment with the relevant findings of Revision 2 of **ES Technical Note- Updated Information on Cumulative Projects** (document reference REP3-028) submitted at Deadline 3. Additionally, the status of the list of projects included in Table 1.1 of this document was reviewed and updated where further public information is available. This also included a review of whether any new projects should be included in the assessment in this document. At the time of updating this document (Revision 2, December 2023), no further projects are identified to include in this document. The RPAs agreed with this position at ISH4 Item 8 when it was raised by the Examining Authority.

1.10. At Deadline 5, this document was updated again to ensure that it is in alignment with the relevant findings of Revision 5 of the **ES Technical Note – Updated Information on Cumulative Projects** (document reference: ExA.ESTN-Cumulative-D5.V4) also submitted at Deadline 5. Additionally, the status of the list of projects included in Table 1.1 of this document was reviewed and updated where further public information is available. This also included a review of whether any new projects should be included in the assessment in this document. It was agreed with the Relevant Planning Authorities (RPAs) post ISH4 that any new Town and Country Planning Schemes that they wished to be included within the wider ES Cumulative Assessment would be stated by Deadline 4. Schemes that were already listed within the Cumulative Long List would be reviewed and updated for Deadline 5. For the purpose of the Interrelationships Report there are no new schemes that have been added for Deadline 5. However, some of the NSIP schemes have progressed through the Examination process and others have started their Statutory Consultation. Any new information which is within the public domain, that is deemed relevant to the cumulative assessment, on these schemes has been reviewed for this version of the Interrelationship Report.

2. Initial Cumulative Impact Assessment

2.1. An Environmental Statement (ES) was prepared for the Proposed Development's DCO application and accordingly assessed cumulative effects as per the requirements within the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 as amended (hereafter referred to as the "EIA Regulations"). Additionally, the Planning Inspectorate Advice Note 17 (Planning Inspectorate, 2019) provides a clear and systematic approach to identify projects with potential cumulative effects which formed the basis of the cumulative effects assessment for the Proposed Development. A detailed description of the Cumulative Assessment methodology is found in **Chapter 2: EIA Methodology and Consultation** (document reference 6.1.2/ PS-051) of the ES.

2.2. A long list of cumulative schemes was established using guidance from the Planning Inspectorate Advice Note 17 (Planning Inspectorate, 2019) and the four-stage approach. The long list was further refined to the potential cumulative effect project shortlist, presented and assessed in **Chapters 6 to 18** (document reference 6.1.6-6.1.18/PS-059, PS-061, PS-063, PS-065, REP2-024, REP2-026, PS-069, PS-071, PS-073, PS-075, REP2-028, APP-070 and PS-076) of the ES.

2.3. **Table 1.2** of **Appendix 2.3 - Cumulative Sites Long List and Shortlist** (document reference 6.3.2.3/APP-175) presents the long list and **Table 1.3** of **Appendix 2.3 - Cumulative Sites Long List and Shortlist** (document reference 6.3.2.3/APP-175) presents the shortlist of the potential cumulative effect projects. The identification and collation of the cumulative long list and shortlist was first finalised with agreement from the RPA's prior to the finalisation of the ES chapters and was up to date as of 31st December 2022.

2.4. Since the submission of the DCO Application and acceptance for Examination on the 13th March 2023, the status of some of the identified projects in the cumulative long list and shortlist has subsequently changed. Additionally, there are new applications which have been identified and submitted to the Relevant Planning Authority's and PINS subsequent to the submission of the Heckington Fen Solar Park DCO Application. A standalone ES cumulative impact assessment has been produced during Examination of Heckington Fen Solar Park, **ES Technical Note- Updated Information on Cumulative Projects** (document reference ExA.ESTN-Cumulative-D5.V4).

2.5. The **ES Technical Note- Updated Information on Cumulative Projects** (document reference ExA.ESTN-Cumulative-D5.V4 submitted at Deadline 5 supersedes the cumulative assessment presented in the original technical ES **Chapters 6-18** (document reference 6.1.6-6.1.18/PS-059, PS-061, PS-063, PS-065, REP2-024, REP2-026, REP2-028, PS-071, PS-073, PS-075, APP-069, APP-070 and PS-076). **Appendix 2.3 - Cumulative Sites Long List and Shortlist** (document reference 6.3.2.3/APP-175) is superseded with an updated version presented in the **ES Technical Note- Updated Information on Cumulative Projects** (document reference ExA.ESTN-Cumulative-D5.V4). At Deadline 5, a Revision 4 of the **ES Technical Note- Updated Information on Cumulative Projects** has been submitted to align the cumulative project information with the most up to date publicly available information, correct as of February 2024. This Revision 3 of the Interrelationship of other Nationally Significant Interrelationship Report is aligned, where relevant, with Revision 4 of the **ES Technical Note- Updated Information on Cumulative Projects** (document reference ExA.ESTN-Cumulative-D5.V4).

2.6. The purpose of this document is to consider the interrelationship of NSIP solar schemes within close proximity to the Proposed Development, and to update this report at each Deadline if information in the original version submitted at Deadline 1 has changed or new information has become available. The intention within this document is not to provide a full cumulative assessment of all projects identified in the shortlist of the ES, nor is it the purpose of the document to focus on the interrelationship of the Proposed Development with TCPA solar applications.

2.7. However, to ensure a robust assessment, the Applicant has considered it worthwhile to additionally include Lincolnshire Reservoir (WA010003), One Earth Solar Farm (EN010159) and two large (49.9MW) TCPA solar farm schemes, Vicarage Drove (B/21/0443) and Land West of Cowbridge Road (B/22/0356 and H04-0849-22), close to the Order Limits of the Proposed Development within the initial assessment at **Table 1.1** of this document.

2.8. It was also agreed during Issue Specific Hearing 2 on the 20th September 2023 that One Earth Solar Farm (EN010159) and the two large (49.9MW) TCPA solar schemes listed at paragraph 2.6 of this document should be included following a request from two of the Relevant Planning Authorities (namely Lincolnshire County Council and North Kesteven District Council).

2.9. **Table 1.1** of this document sets out an initial assessment including details of each of these projects, distances from the Proposed Development[1], justification of whether the other project is deemed to have / or not have potential cumulative effects that would require further assessment in this report and clear identification of whether the other project will be further assessed[2]. The details of the other projects are correct as of February 2024. It should be noted that the Order Limits for all projects not yet submitted are evolving and may change over time.

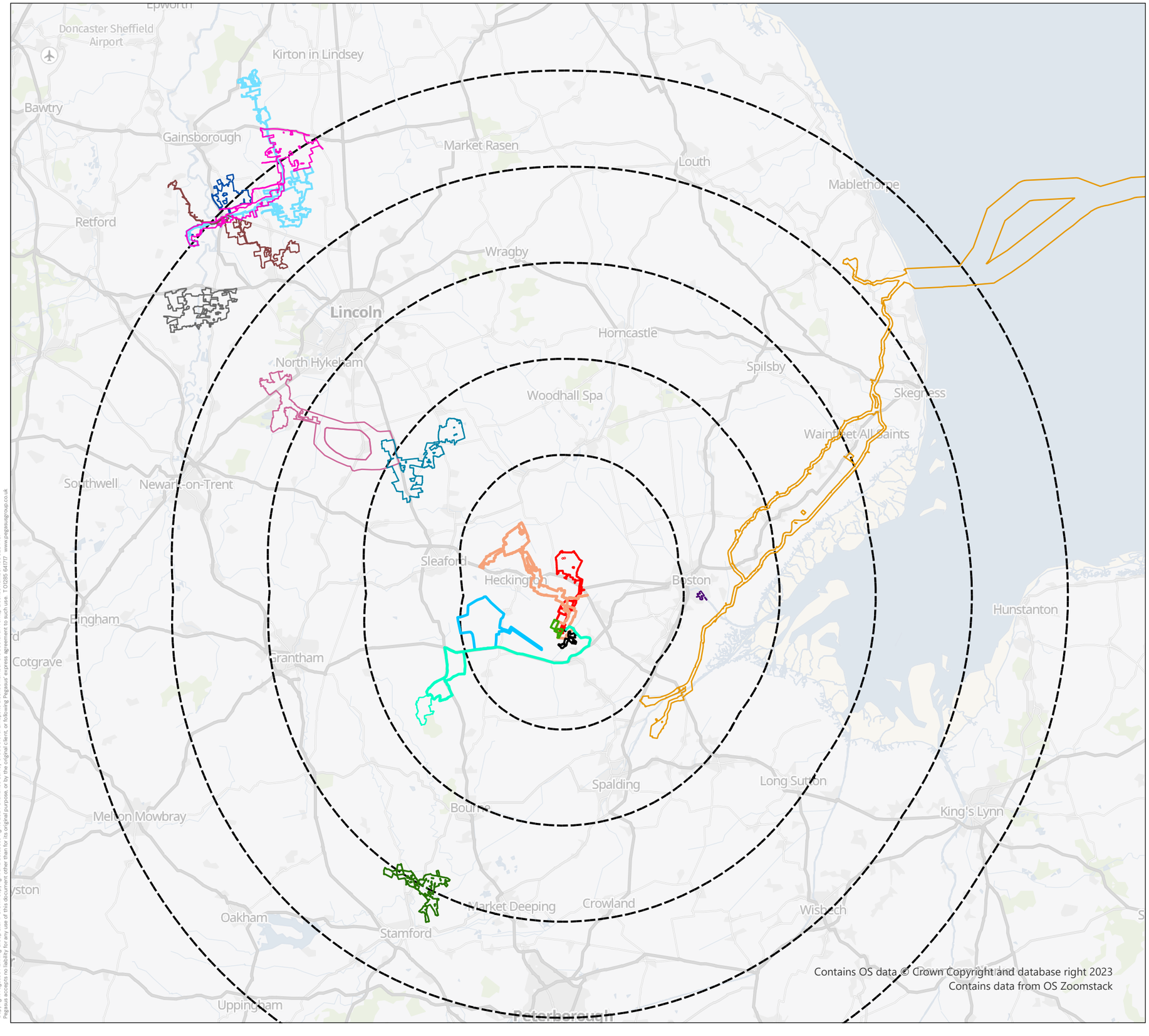
2.10. **Appendix 2 - Cumulative Land and Agricultural Land Note** is included within this report to provide additional information on agricultural land impacts within Lincolnshire and support justification for not progressing some of these projects past the initial assessment.

2.11. **Figure 1.1 –Other proposed projects with potential cumulative interrelationship effects in Lincolnshire** is set out below to enable visual identification of the projects set out in **Table 1.1** with the respective Order Limits and Red Line Boundaries[3].

[1] Measurement taken from closest point between Energy Park area of Heckington Fen Solar Park and the other projects solar panel/energy storage area where possible. Where cable route corridors overlap this measurement is also listed.

[2] The identification of the Proposed Development to have potential for cumulative effects with other projects has been completed by a competent expert and specialist in the Environmental Impact Assessment (EIA) of Pegasus Group. The document has been reviewed by a Chartered Environmentalist (CEnv) and a Full Member of the Institute of Environmental Management and Assessment (MIEMA).

[3] Order Limits and Red Line Boundaries (TCPA) correct as of February 2024



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KEY

- Radii Rings 10km-50km
- Heckington Fen Solar Park (EN010123)
- Cottam Solar Project (EN010133)
- Tillbridge Solar Project (EN10142)
- Gate Burton Energy Park (EN010131)
- West Burton Solar Project (EN010132)
- One Earth Solar (EN010159)
- Fosse Green (EN010154)
- Springwell Solar Farm (EN010149)
- Beacon Fen Energy Park (EN010152)
- Temple Oaks Renewable Energy Park (EN010126)
- Mallard Pass Solar Farm (EN010127)
- Lincolnshire Reservoir (WA010003)
- Vicarage Drove - Approved B/21/0443
- Land West of Cowbridge Road, Bicker Fen, Boston - Approved [H04-0849-22 - South Holland District Council] [B/22/0356 – Boston Borough Council]
- Boston Alternative Energy Facility (EN010095)
- Outer Dowsing Offshore Wind (Generating Station) (EN010130)

FIGURE 1.1 OTHER PROPOSED PROJECTS WITH POTENTIAL CUMULATIVE INTERRELATIONSHIP EFFECTS IN LINCOLNSHIRE

DATE	SCALE	SHEET	REVISION
31/01/2024	1:400,000@A3	-	D

DRAWING NUMBER
P20-2370_102

0 10 km

ecotricity

PEGASUS GROUP

Table 1.1 – Initial assessment of other projects with potential cumulative effects

No.	Project Name and Reference	LPA	NSIP	Stage of Application	Approximate Distance from Proposed Development (km)	Potential for cumulative effects	Justification to progress to further assessment or not.
1	Boston Alternative Energy Facility (EN010095)	Boston Borough Council	Yes	Development Consent Granted (6th July 2023)	Circa (c.) 12.5km east of the Energy Park Site at its closest point to the main site of Boston Alternative Energy Facility.	No	Boston Alternative Energy Facility is of significant physical distance and separation to the Proposed Development. Boston Alternative Energy Facility received development consent on 5 July 2023, and the expected operation date is 2026 (see **Appendix 1**). The construction and operation timescales for Boston Alternative Energy Facility are unlikely to be in conflict with the Proposed Development's timescales. The ES documentation for Boston Alternative Energy Facility predicted construction in 2022, however, the application was granted consent in 2023. Therefore, the delay in timeline could result in an overlap of construction timelines, however the significant distance between the sites will not result in a cumulative construction haulage impact. Therefore, the Applicant considers no further assessment is necessary of this project within this report.
2	Mallard Pass Solar Farm (EN010127)	Rutland County Council/ South Kesteven District Council	Yes	Examination closed 16th November 2023 – Planning Inspectorate expected to issue recommendation	c.33.2km south-west of the Energy Park Site at its closest point to the main site of Mallard Pass Solar Farm.	No	Mallard Pass Solar Farm is of significant physical distance and separation to the Proposed Development. There would be no significant in combination effects relating to landscape and visual, ecology, hydrology, transport (construction timescales are similar, but construction haulage routes will not interact- see **Appendix 1**), noise and vibration, air quality, socio-economic or cultural

No.	Project Name and Reference	LPA	NSIP	Stage of Application	Approximate Distance from Proposed Development (km)	Potential for cumulative effects	Justification to progress to further assessment or not.
				by 16th February 2024.			heritage matters. Collectively, if Mallard Pass Solar Farm and the Proposed Development was granted development consent it would be of beneficial effect in its contribution towards meeting the UK's net zero target. Additionally, as set out in **Appendix 2** of this document the temporary cumulative change of use of BMV land at Mallard Pass Solar Farm in combination with the ten other NSIP solar sites in Lincolnshire (if all were granted Development Consent) would not be considered significant. Therefore, the Applicant considers no further assessment is necessary of this project within this report.
3	Cottam Solar Project (EN010133)	West Lindsey District Council / Bassetlaw District Council	Yes	Examination ongoing – expected to close March 2024	c.43.4km north-west of the Energy Park Site at its closest point to the main site of Cottam Solar Project.	No	Cottam Solar Project is of significant physical distance and separation to the Proposed Development. There would be no significant in combination effects relating to landscape and visual, ecology, hydrology, transport (construction timescales will not interact- see **Appendix 1**), noise and vibration, air quality, socio-economic or cultural heritage matters. Collectively, if Cottam Solar Project and the Proposed Development was granted Development Consent it would be of beneficial effect in its contribution towards meeting the UK's net zero target. Additionally, as set out in **Appendix 2** of this document, the temporary cumulative change of use of BMV land at Cottam

No.	Project Name and Reference	LPA	NSIP	Stage of Application	Approximate Distance from Proposed Development (km)	Potential for cumulative effects	Justification to progress to further assessment or not.
							Solar Project in combination with the ten other NSIP solar sites in Lincolnshire (if all were granted Development Consent) would not be considered significant. Therefore, the Applicant considers no further assessment is necessary of this project within this report.
4	Gate Burton Energy Park (EN010131)	Bassetlaw District Council and West Lindsey District Council	Yes	Examination closed 4th January 2024 – Application not yet determined	c.48.5km north-west of the Energy Park Site at its closest point to the main site of Gate Burton Energy Park.	No	Gate Burton Energy Park is of significant physical distance and separation to the Proposed Development. There would be no significant in combination effects relating to landscape and visual, ecology, hydrology, transport (construction timescales will not interact- see **Appendix 1**), noise and vibration, air quality, socio-economic or cultural heritage matters. Collectively, if Gate Burton Energy Project and the Proposed Development was granted Development Consent it would be of beneficial effect in its contribution towards meeting the UK's net zero target. Additionally, as set out in **Appendix 2** of this document the temporary cumulative change of use of BMV land at Gate Burton Energy Park in combination with the ten other NSIP solar sites in Lincolnshire (if all were granted Development Consent) would not be considered significant. Therefore, the Applicant considers no further assessment is necessary of this project within this report.

No.	Project Name and Reference	LPA	NSIP	Stage of Application	Approximate Distance from Proposed Development (km)	Potential for cumulative effects	Justification to progress to further assessment or not.
5	West Burton Solar Project (EN010132)	West Lindsey/ Bassetlaw District Council	Yes	Examination ongoing – expected to close May 2024	c.41.1km north-west of the Energy Park Site at its closest point to the main site of West Burton Solar Project.	No	West Burton Solar Project is of significant physical distance and separation to the Proposed Development. There would be no significant in combination effects relating to landscape and visual, ecology, hydrology, transport (construction timescales will not interact- see **Appendix 1**), noise and vibration, air quality, socio-economic or cultural heritage matters. Collectively, if West Burton Solar Project and the Proposed Development was granted Development Consent it would be of beneficial effect in its contribution towards meeting the UK's net zero target. Additionally, as set out in **Appendix 2** of this document the temporary cumulative change of use of BMV land at West Burton Solar Project in combination with the ten other NSIP solar sites in Lincolnshire (if all were granted Development Consent) would not be considered significant. Therefore, the Applicant considers no further assessment is necessary of this project within this report.
6	Beacon Fen Energy Park (EN010152)	North Kesteven District Council / Boston	Yes	Pre-Application Scoping Report Submitted and Response	c.3.3km north-west of the Energy Park Site at its closest point to the main site of Beacon Fen Energy Park.	Yes	Potential for cumulative effects due to the close proximity between Beacon Fen Energy Park and the Proposed Development and crossing of the Offsite Cable Route Corridor. Beacon Fen Energy Park project is assessed in further detail in this report.

No.	Project Name and Reference	LPA	NSIP	Stage of Application	Approximate Distance from Proposed Development (km)	Potential for cumulative effects	Justification to progress to further assessment or not.
		Borough Council		Published June 2023. Statutory Consultation commenced 22nd January 2024	The Offsite Cable Route Corridor of both projects are set to intersect. The area of possible crossing is on land south of the South Forty Foot Drain.		
7	Outer Dowsing Offshore Wind (Generating Station) (EN010130)	Wind farm 54km off coast of Lincolnshire. Cable Route corridor to Weston Marsh (north of Spalding).	Yes	Pre-Application (Statutory Consultation stage)	c.14km east of the Energy Park Site at its closest point to the Offsite Cable Route Corridor and point of connection of Outer Dowsing Offshore Wind.	No	Outer Dowsing Offshore Wind is of significant physical distance and separation to the Proposed Development. The main site (i.e., the wind farm) is proposed to be 54km off the coast of Lincolnshire. The cable route corridor has been further refined within the PEIR documentation of the project website, with a new National Grid onshore substation proposed to be built within Weston Marsh, north-east of Spalding[4]. If Outer Dowsing Offshore Wind Facility is granted development consent, the expected operation date is 2026 (see **Appendix 1**). The construction timescales for Outer Dowsing Offshore Wind Facility coincide with the Proposed Development, however there is expected

[4] Information taken from 6.1.3 Project Description chapter of PEIR of the Outer Dowsing Applicant project website. An update was provided under 'News' section of the project website on the 10/08/23 that only the Weston Marsh options (Weston Marsh South and Weston Marsh North) would be pursued, and the Lincolnshire Node option within the PEIR would no longer be pursued.

No.	Project Name and Reference	LPA	NSIP	Stage of Application	Approximate Distance from Proposed Development (km)	Potential for cumulative effects	Justification to progress to further assessment or not.
							to be no overlap or interaction due to the distance and the fact that the two sites do not share a common Point of Connection (POC) into the National Grid System. There would be no significant in combination effects relating to landscape and visual, ecology, hydrology, transport, noise and vibration, air quality, socio-economic or cultural heritage matters. Therefore, the Applicant considers no further assessment is necessary of this project within this report.
8	Temple Oaks Renewable Energy Park (EN010126)	South Kesteven District Council	Yes	Pre-Application (Scoping Report stage)	c.18.1 km southwest of the Energy Park Site at its closest point to the main site of Temple Oaks Renewable Energy Park To note, the Offsite Cable Route Corridors of both projects connect into Bicker Fen Substation and are of close proximity (less than 1km).	No	Temple Oaks Renewable Energy Park is of significant physical distance and separation to the Proposed Development. However, the Offsite Cable Route Corridors for both projects connect into Bicker Fen Substation and are therefore of close proximity. The Order Limits of both projects currently do not overlap as the proposed POC for Temple Oaks Renewable Energy Park is located at the northeast area of Bicker Fen Substation. There would be no significant in combination effects relating to landscape and visual, ecology, hydrology, transport, noise and vibration, air quality, socio-economic or cultural heritage matters. Construction timescales have potential to interact - see **Appendix 1,** however, construction haulage routes are expected to not overlap for the main solar array sites. There is potential for overlap in construction haulage routes

No.	Project Name and Reference	LPA	NSIP	Stage of Application	Approximate Distance from Proposed Development (km)	Potential for cumulative effects	Justification to progress to further assessment or not.
							for Bicker Fen Substation extension works (yet to be confirmed in the Temple Oaks Renewable Energy Park application if this is required). However, paragraph 3.16 of this report confirms traffic associated with construction at Bicker Fen Substation for multiple connection customers can be accommodated and not cause significant effects. Collectively, if Temple Oaks Renewable Energy Park and the Proposed Development was granted Development Consent it would be of beneficial effect in its contribution towards meeting the UK's net zero target. Additionally, as set out in **Appendix 2** of this document the temporary cumulative change of use of BMV land at Temple Oaks Renewable Energy Park in combination with the ten other NSIP solar sites in Lincolnshire (if all were granted Development Consent) would not be considered significant. Therefore, the Applicant considers no further assessment is necessary of this project within this report.
9	Springwell Solar Farm (EN010149)	North Kesteven District Council	Yes	Pre-Application (Scoping Report submitted and response published in May 2023.	c.15.5km northwest of the Energy Park Site at its closest point to the main site of Springwell Solar Farm	No	Springwell Solar Farm is of significant physical distance and separation to the Proposed Development. There would be no significant in combination effects relating to landscape and visual, ecology, hydrology, transport (construction timescales have potential to interact- see **Appendix 1,** however, construction haulage routes

No.	Project Name and Reference	LPA	NSIP	Stage of Application	Approximate Distance from Proposed Development (km)	Potential for cumulative effects	Justification to progress to further assessment or not.
				Statutory Consultation commenced on 11th January 2024)			will not overlap), noise and vibration, air quality, socio-economic or cultural heritage matters. Collectively, if Springwell Solar Farm and the Proposed Development was granted Development Consent it would be of beneficial effect in its contribution towards meeting the UK's net zero target. Additionally, as set out in **Appendix 2** of this document the temporary cumulative change of use of BMV land at Springwell Solar Farm in combination with the ten other NSIP solar sites in Lincolnshire (if all were granted Development Consent) would not be considered significant. Therefore, the Applicant considers no further assessment is necessary of this project within this report.
10	Fosse Green Energy (EN010154)	North Kesteven District Council	Yes	Pre- Application (Scoping Report submitted and response published in July 2023)	c.28.3km northwest of the Energy Park Site at its closest point to the main site of Fosse Green Energy.	No	Fosse Green Energy is of significant physical distance and separation to the Proposed Development. There would be no significant in combination effects relating to landscape and visual, ecology, hydrology, transport (construction timescales will not overlap- see **Appendix 1**), noise and vibration, air quality, socio-economic or cultural heritage matters. Collectively, if Fosse Green Energy and the Proposed Development was granted Development Consent it would be of beneficial effect in its contribution towards meeting the UK's net zero target. Additionally, as set out in **Appendix 2** of this document the temporary

No.	Project Name and Reference	LPA	NSIP	Stage of Application	Approximate Distance from Proposed Development (km)	Potential for cumulative effects	Justification to progress to further assessment or not.
							cumulative change of use of BMV land at Fosse Green Energy in combination with the ten other NSIP solar sites in Lincolnshire (if all were granted Development Consent) would not be considered significant. Therefore, the Applicant considers no further assessment is necessary of this project within this report.
11	Tillbridge Solar Project (EN10142)	West Lindsey District Council / Bassetlaw District Council	Yes	Pre-Application (Statutory Consultation stage- In December 2023- January 2024 targeted statutory consultation took place with proposed changes to the Order Limits – Application to be submitted in 2024)	c. 47.7km northwest of the Energy Park Site at its closest point to the main site of Tillbridge Solar Project	No	Tillbridge Solar Project is of significant physical distance and separation to the Proposed Development. There would be no significant in combination effects relating to landscape and visual, ecology, hydrology, transport (construction timescales have potential to interact- see **Appendix 1,** however, construction haulage routes will not overlap), noise and vibration, air quality, socio-economic or cultural heritage matters. Collectively, if Tillbridge Solar Project and the Proposed Development was granted Development Consent it would be of beneficial effect in its contribution towards meeting the UK's net zero target. Additionally, as set out in **Appendix 2** of this document the temporary cumulative change of use of BMV land at Tillbridge Solar Project in combination with the ten other NSIP solar sites in Lincolnshire (if all were granted Development Consent) would not be considered significant. Therefore, the Applicant considers no further

No.	Project Name and Reference	LPA	NSIP	Stage of Application	Approximate Distance from Proposed Development (km)	Potential for cumulative effects	Justification to progress to further assessment or not.
							assessment is necessary of this project within this report.
12	One Earth Solar Farm (EN010159)	Bassetlaw District Council and Newark and Sherwood District Council	Yes	Pre-Application (Scoping Report submitted and response published on 22nd December 2023)	c. 42.4km northwest of the Energy Park Site at its closest point to the main site of One Earth Solar Farm	No	One Earth Solar Farm is of significant physical distance and separation to the Proposed Development. One Earth Solar Farm is at the very early stages of pre-application, with a non-statutory consultation starting on the 27th September 2023, and Scoping Report submitted on the 13th November 2023 to the Planning Inspectorate. There would be no significant in combination effects relating to landscape and visual, ecology, hydrology, transport (construction timescales will not overlap- see **Appendix 1**), noise and vibration, air quality, socio-economic or cultural heritage matters. Collectively, if One Earth Solar Farm and the Proposed Development was granted Development Consent it would be of beneficial effect in its contribution towards meeting the UK's net zero target. Additionally, as set out in **Appendix 2** of this document the temporary cumulative change of use of BMV land at One Earth Solar Farm in combination with the ten other NSIP solar sites in Lincolnshire (if all were granted Development Consent) would not be considered significant. Therefore, the Applicant considers no further assessment is necessary of this project within this report.

No.	Project Name and Reference	LPA	NSIP	Stage of Application	Approximate Distance from Proposed Development (km)	Potential for cumulative effects	Justification to progress to further assessment or not.
13	Lincolnshire Reservoir (WA010003)	North Kesteven District Council	Yes	Pre-Application (No Scoping Report)	c. 6.9km west of the Energy Park Site at its closest point to the main reservoir site	No	Lincolnshire Reservoir is currently at the pre-application stage with the Planning Inspectorate. Phase 1 consultation was undertaken from the 12th October -21st December 2022, a second and third consultation phase is expected in 2024 and 2025, with a DCO application submission expected in Q3 2025. Construction is expected to begin in 2029 (see **Appendix 1**) and will therefore not conflict with Heckington Fen Solar Park as the site is expected to be operational. It is expected there would be no significant in combination effects relating to landscape and visual, ecology, hydrology, transport, noise and vibration, air quality, socio-economic or cultural heritage matters. Additionally, as set out in **Appendix 2** of this document the cumulative permanent loss of BMV land at Lincolnshire Reservoir in combination with the ten other NSIP solar sites in Lincolnshire (if all were granted Development Consent) would not be considered significant. Therefore, the Applicant considers no further assessment is necessary of this project within this report.
14	Vicarage Drove (B/21/0443)	Boston Borough Council	No (TCPA scheme)	Approved (17th February 2022)	c. 4.4km south of the Energy Park Site at its closest point to the main	Yes	Vicarage Drove Solar Farm is an approved TCPA scheme of 49.9MW. It was granted approval in February 2022- see **Appendix 1**. Screening of this Proposed Development determined that an EIA was not required for this solar farm development. The

No.	Project Name and Reference	LPA	NSIP	Stage of Application	Approximate Distance from Proposed Development (km)	Potential for cumulative effects	Justification to progress to further assessment or not.
					site at Vicarage Drove. To note, Offsite Cable Route Corridor of the Proposed Development overlaps with cable route for Vicarage Drove, at the closest point (0km)		submitted planning application documentation does not outline a construction timescale, but it is deemed the construction timescales will not conflict as the planning permission requires building work to have started within 3 years of the permission being granted (i.e., by February 2025), and to date no final design of the solar farm has been submitted to Boston Borough Council although some documentation for discharge of planning conditions was submitted in November 2023. A full assessment of the cumulative impacts of Vicarage Drove and Heckington Fen Solar Park is found within **Chapters 6 to 18** (document reference 6.1.6-6.1.18/ APP-059- APP-071) of the Heckington Fen Solar Park ES. There would be no significant in combination effects relating to ecology, hydrology, transport, noise and vibration, air quality or cultural heritage matters. The cumulative assessment in the ES has shown that significant effects are created in regard to Landscape and Visual and the local landscape character during construction, assuming the worst-case scenario that construction timelines overlap. The landscape and visual effects would be short term and temporary – see **Chapter 19** (document reference 6.1.19/ PS-078). Vicarage Drove is circa 80ha and predominantly 3b graded land and would therefore not cause a cumulative impact of loss of BMV land with the Proposed Development. Additionally significant beneficial

No.	Project Name and Reference	LPA	NSIP	Stage of Application	Approximate Distance from Proposed Development (km)	Potential for cumulative effects	Justification to progress to further assessment or not.
							effects have been determined in the cumulative assessment in the ES for Socio-Economic in regard to economic contribution and business rates in the local area, and beneficial contribution towards meeting the UK's net zero targets in terms of Climate Change and reduction of GHG emissions - see **Chapter 19** (document reference 6.1.19/ PS-078). This project is not an NSIP solar project as it has a generating capacity of under 50MW; the main purpose of this report is to assess the interrelationship of NSIP solar projects within the region. Therefore, the Applicant considers no further assessment is necessary of this project within this report. This project will be updated in the ES cumulative assessment if required.
15	Land West of Cowbridge Road (B/22/0356 and H04-0849-22)	Boston Borough Council and South Holland District Council	No (TCPA scheme)	Approved (21st July 2023)	c. 5.4km south of the Energy Park Site at its closest point to main site of Cowbridge. To note, the Offsite Cable Route Corridor of the Proposed Development and Cowbridge are	Yes	Land west of Cowbridge Road Solar Farm is an approved TCPA scheme of 49.9MW. It was granted approval in July 2023- see **Appendix 1**. Screening of this Proposed Development determined that an EIA was not required for this solar farm development. The accompanying planning application documentation does not outline a construction timescale, but it is deemed the construction timescales will not conflict as the planning permission requires building work to have started within 3 years of the permission being granted (i.e., July 2026). To date no documents have been

No.	Project Name and Reference	LPA	NSIP	Stage of Application	Approximate Distance from Proposed Development (km)	Potential for cumulative effects	Justification to progress to further assessment or not.
					very close (less than 1km) as both connect into NG Bicker Fen Substation. The routing of both cable routes indicates there will be no overlapping as they are connecting into different bay locations at NG Bicker Fen Substation.		submitted to discharge the planning conditions attached to this application. A full assessment of the cumulative impacts of Land west of Cowbridge Road Solar Farm and Heckington Fen Solar Park is found within **Chapters 6 to 18** (document reference 6.1.6-6.1.18/ APP-059- APP-071) of the Heckington Fen Solar Park ES. There would be no significant in combination effects relating to ecology, hydrology, transport, noise and vibration, air quality or cultural heritage matters. The cumulative assessment in the ES has shown that significant effects are created in regard to Landscape and Visual and the local landscape character during construction, assuming worst-case scenario that construction timelines overlap. The landscape and visual effects would be short term and temporary – see **Chapter 19** (document reference 6.1.19/PS-078). Cowbridge Lane is circa 110ha in size and 100% BMV agricultural land. Additionally significant beneficial effects have been determined in the cumulative assessment in the ES for Socio-Economic in regard to economic contribution and business rates in the local area, and beneficial contribution towards meeting the UK's net zero targets in terms of Climate Change and reduction of GHG emissions - see **Chapter 19** (document reference 6.1.19/ PS-078). This project is not an NSIP solar project as it has a generating capacity of under 50MW; the main purpose of this report is to assess the interrelationship of NSIP solar

No.	Project Name and Reference	LPA	NSIP	Stage of Application	Approximate Distance from Proposed Development (km)	Potential for cumulative effects	Justification to progress to further assessment or not.
							projects within the region. Therefore, the Applicant considers no further assessment is necessary of this project within this report. This project will be updated in the ES cumulative assessment if required.

2.12. Therefore, this document focuses on the following NSIP solar project which is within close proximity (less than 5km) and is deemed to have potential for cumulative effects requiring further assessment:

- Beacon Fen Energy Park (EN010152).

2.13. The Applicant has not considered the other projects listed in **Table 1.1** further as they are identified to have no potential for cumulative effects with the Proposed Development due to the reasons as stated in column 7 of **Table 1.1.** These projects have primarily been discounted due to extensive physical distance from the Proposed Development and do not share any common features. Or, if potential cumulative effects, such as Climate Change and Socio Economic, has been identified such as with the two TCPA solar farm applications (Vicarage Drove and Land West of Cowbridge Road), a cumulative assessment has already been provided in the **ES Technical Note- Updated Information on Cumulative Projects** (document reference ExA.ESTN-Cumulative-D5.V4) and can be referred to for this information and therefore has not been replicated within this report.

2.14. It is noted, loss of agricultural land cumulatively from solar farms (NSIP & TCPA) within Lincolnshire was assessed in the Proposed Development's ES to potentially cause a significant effect (document reference 6.1.16/ APP-069). This conclusion was based on a worst-case scenario due to lack of data on BMV breakdown and lack of confirmation of permanent or temporary loss of agricultural land or the options for ongoing agricultural practices for all projects. Therefore, it is expected in reality as these design mitigation strategies are implemented the effects would be greatly reduced. The significance of the potential effect was discussed further at ISH3 (Item 8) and the Applicant's Position Statement on Land Use and BMV was submitted as Appendix 3 of the Written Summary of Applicant's oral Case -ISH 3 (Document Reference: REP3-038). This document states that cumulatively as of Deadline 3 there would be a cumulative loss of 60.3ha of BMV land within Lincolnshire. This loss equates to 0.01% of BMV land within Lincolnshire which is not significant in EIA terms. However, in light of the information provided in **Appendix 2**, the cumulative assessment has been updated at Deadline 2, Deadline 4 and again at Deadline 5. The most recent version can be seen in the **ES Technical Note- Updated Information on Cumulative Projects** (document reference ExA.ESTN-Cumulative-D5.V4).

Report Structure

2.15. In line with the requirements in Annex G of the Rule 6 letter, this document addresses the following sections:

- Section 3 provides an overview of the Proposed Development and the Beacon Fen Energy Park scheme, including details on timings, construction phasing, grid connection and start of operation where possible. This is accompanied by **Figure 1.1 and Figure 1.2** integrated into the main text (as required by the first bullet point in Annex G of the Rule 6 letter) showing the Order Limits for the Proposed Development and the other projects identified for further assessment. The plans show the locations of the main features of each project, including, where known, solar arrays, energy storage facilities, substations, electrical cable routes, grid connections, environmental mitigation areas, temporary construction and decommissioning areas, and construction haulage routes. Beacon Fen Energy Park has now commenced the Statutory Consultation process. The information of the proposed extent of the Order

Limits and Site Layout Design is taken from information published within the Preliminary Environmental Information Report (PEIR)[5] and is presented in **Figure 1.2**;

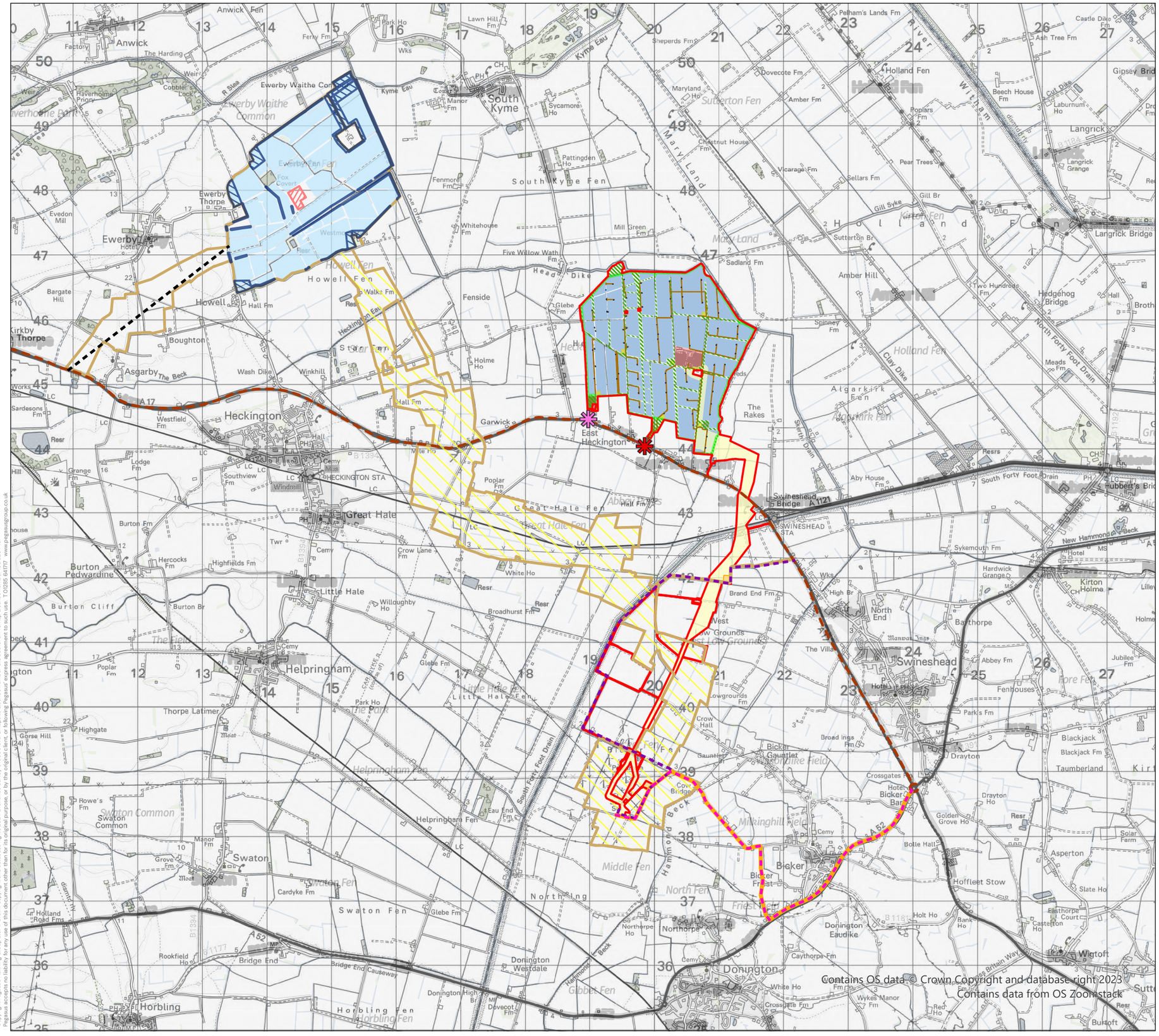
- Section 4 outlines the approach taken by the Applicant to coordinate the Proposed Development with the other projects, including during Examination;
- Section 5 outlines the DCO provisions required for the Proposed Development to be implemented satisfactorily in relation to other projects;
- Section 6 outlines the mitigation measures to be shared with the other projects and how they are secured;
- Section 7 sets out information on the other projects relied upon for the cumulative impact assessment, the level of detail, and any other changes since the application for the Proposed Development was submitted; and
- Section 8 provides a summary setting out the matters that have been agreed, any inconsistencies or outstanding matters, and the next steps to be taken to resolve them.

[5] Beacon Fen Formal Consultation commenced January 2024, PEIR located at the following link, which shows the layout design presented in Formal Consultation and various options for construction access routes https://www.beaconfenenergypark.co.uk/documents/.

3. Overview of the Proposed Development and other projects

3.1. This section of the document provides an overview of the Proposed Development and the Beacon Energy Park project. This includes details covering timings, construction phasing, grid connection and start of operation. This section is accompanied by **Figure 1.2** which shows, where possible, the locations of the main features of each project, including solar arrays, energy storage facilities, substations, electrical cable routes, grid connections, environmental mitigation areas, temporary construction and decommissioning areas, and construction haulage routes[6].

[6] At the time of writing this report, Beacon Fen Energy Park has not submitted a DCO application. They have commenced their Statutory Consultation process on the 22nd January 2024 and published a PEIR as part of this consultation. This documentation is available on the Beacon Fen Energy Park project website which has been set up by Low Carbon. This website provides the most up to date design evolution information included in **Figure 1.2** Due to the early stages of design evolution for Beacon Fen Energy Park, not all available information set out in the first bullet point of Annex G4 of the Rule 6 Letter is available to be included. Information included in **Figure 1.2** is correct as of February 2024. https://www.beaconfenenergypark.co.uk/documents/



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KEY

Heckington Fen Solar Park Development

- Heckington Fen Solar Park (EN010123)
- Solar Park Zone
- Offsite Cable Route Corridor
- Community Orchard
- Construction and Operational Compounds
- Inverters and Transformer Station
- Access Tracks
- Site Main Substation / Energy Storage Compound
- Construction Compounds
- Habitat Enhancement (Environmental Mitigation Areas)
- Proposed Hedge (Environmental Mitigation Areas)
- Energy Park Construction Haulage Route
- National Grid Bicker Fen Substation Extension Works Construction Haulage Route (Works 6B/6C exceptional circumstances use)
- Intended Access Route for Construction Traffic associated with the Construction of the Extension Works at National Grid Bicker Fen Substation for the Heckington Fen Energy Park.
  This route uses the existing Triton Knoll Access Track and will be used by the Applicants and NGET's construction traffic. It will be used for traffic involved in the constructions of Works No. 6a, 6b and 6c.
- Proposed Site Entrance (construction and operational access)
- Temporary Construction Access

Beacon Fen Energy Park Development

- Beacon Fen Energy Park (EN010152)
- Solar Array Panels Area
- Offsite Cable Route Corridor
- Indicative Substation and BESS Area
- Environmental Mitigation Areas
- Estimated Route Location for Proposed New Haul Road for construction traffic of the Beacon Fen Energy Park.
  This route is presented as Option 2 within the Beacon Fen PEIR and is presented as the applicants preferred route. The Formal Consultation for Beacon Fen has presented 5 construction traffic routes, not all of which are within the Order Limits presented at Formal Consultation. The PEIR proposes that the new haul road for this route will be removed once construction is completed.
- Proposed Construction Traffic Route for the construction of the extension to National Grid Bicker Fen Substation.
  As presented in the Beacon Fen PEIR, this route is the suggested route for construction traffic related to construction works at the National Grid Bicker Fen Substation.

FIGURE 1.2 HECKINGTON FEN SOLAR PARK AND BEACON FEN ENERGY PARK INTERRELATIONSHIP LAYOUT PLAN

DATE	SCALE	SHEET	REVISION
06/02/2024	1:60,000@A3	-	D

DRAWING NUMBER
P20-2370_103

0 2.5 km

ecotricity

PEGASUS GROUP

Overview of the Proposed Development and Beacon Fen Energy Park

Heckington Fen Solar Park

3.2. Heckington Fen Solar Park is promoted by Ecotricity (Heck Fen Solar) Ltd. The Proposed Development is located within the county of Lincolnshire, with the main Energy Park of approximately 524ha sited in North Kesteven. The Energy Park is approximately 3.7km east of the village of Heckington. The Energy Park will consist of primarily solar PV infrastructure and an Energy Storage System (ESS), as well as associated infrastructure accommodated in one land parcel at the main site. Electricity generated will be transferred by an underground 400kV cable. The connecting Offsite Cable Route Corridor extends approximately 8.5km in length south from the Energy Park onsite substation to the connection point at the National Grid Bicker Fen Substation. The Offsite Cable Route Corridor spans across Boston Borough and North Kesteven.

3.3. The DCO application was accepted for Examination by the Planning Inspectorate (PINS) on 13th March 2023. Examination commenced on 19th September 2023 and is due to close no later than 19 March 2024.

3.4. If granted, Heckington Fen Solar Park will anticipate peak construction in 2026/2027, with the main commencement of construction in 2026 built over a maximum 30-month period. The extension works at Bicker Fen Substation are estimated to have a construction timescale of 60 weeks. Site preparation works could take place in 2025 on-site.

3.5. The Applicant entered into a Connection Agreement with National Grid Electricity System Operator (NGESO) Ltd on 19th July 2022 with a grid connection for 2027. Commissioning of the Proposed Development is estimated for Autumn 2027 and assumes the Proposed Development will be operational and supply electricity to the national electricity transmission network. The Proposed Development will be operational for 40 years and it is estimated the Proposed Development will be decommissioned in 2067/2068.

Beacon Fen Energy Park

3.6. Beacon Fen Energy Park is being promoted by Beacon Fen Energy Park Ltd, owned by Low Carbon Limited. The proposal is located north of Heckington adjacent to Ewerby Thorpe in the county of Lincolnshire. The Scoping Report identified solar PV panel arrays to spread over two land parcels identified as 'Beacon Fen North' and 'Beacon Fen South'. A Summer 2023 newsletter published on Beacon Fen Energy Park's project website [7] confirmed the withdrawal of the Beacon Fen South site following non-statutory consultation in May-June 2023. The Beacon Fen North site has been brought forward within the Statutory Consultation and will contain primarily solar PV infrastructure and a Battery Energy Storage System (BESS) as well as associated infrastructure accommodated in one land parcel. They have also included an area of land needed for creating a new haulage road to be built for construction. The Statutory Consultation documents state that this haulage road (if determined to be the final preferred access option) would only be present for the construction phase, and it would not remain during the operational phase of the development. Due to the inclusion of this land

[7] https://www.beaconfenenergypark.co.uk/about-low-carbon/

for the haulage road the total area of the Beacon Fen North site and cable route has increased and is approximately 1,540.4ha. The site is located in North Kesteven with the Cable Route Corridor spanning across North Kesteven and Boston Borough.

3.7. At the time of writing this report, the application is at pre-application stage. A Scoping Report was submitted to PINS on the 19th April 2023 with Statutory Consultation commencing on the 22nd January 2024. A DCO application is expected to be submitted to PINS in Summer 2024. The PEIR[8] indicates that the height of the solar panels will be 4.5m with the BESS (600MW) being made up of a series of containers, each which will have a maximum height of 4.5m. The new onsite substation will have a maximum height of 13m and fencing around the site being 3m in height.

3.8. If granted Development Consent, Beacon Fen Energy Park will anticipate construction to begin in 2026/27 for an estimated construction duration of 24–36-month period. Opening year is estimated between 2028/29 and Beacon Fen Energy Park is proposed to be operational for 40 years. It is estimated Beacon Fen Energy Park will be decommissioned in 2068/2069.

3.9. It has not been disclosed in the public domain if the Beacon Fen Energy Park has a connection agreement in place with National Grid, and if so, the grid connection date to supply electricity to the national electricity transmission network.

Comparison of Heckington Fen Solar Park and Beacon Fen Energy Park

3.10. **Figure 1.2** details where possible based on the current information available for both Heckington Fen Solar Park and Beacon Fen Energy Park the locations of the main solar and energy storage areas, substations, cable route corridors, environmental mitigation areas, construction compounds and construction haulage routes.

3.11. The two projects are both solar energy parks with either a DCO application made, or forthcoming, to the Secretary of State (SoS) for the Department for Energy Security and Net Zero (DESNZ). By virtue of their potential generating capacity, which stands at over 50MW for each project, both proposals are classified as an NSIP.

3.12. The two projects are on differing timelines. Heckington Fen Solar Park has been accepted for Examination that commenced on the 19th September 2023 with an estimated decision date by the SoS in Q2/Q3 2024. Beacon Fen Energy Park is at the pre-application stage with a DCO application expected to be submitted to PINS in Summer 2024. If accepted, Examination is likely to begin in Q4 2024 and a decision expected Q4 2025. Heckington Fen Solar Park will likely be determined by, or around, the time when Beacon Fen Energy Park's Examination is likely to begin.

3.13. The two projects involve the construction, operation (including maintenance), and decommissioning of a ground mounted solar photovoltaic (PV) electricity generation and energy storage facilities, together with associated grid connection infrastructure. The main components of both proposals include: solar PV panel arrays on mounting structures,

[8] Details of the Beacon Fen Scheme taken from Chapter 2 of the PEIR, January 2024.

inverters, transformers, switchgear, onsite and offsite cabling (both include a 400kV cable connecting the sites to National Grid Bicker Fen Substation), Energy Storage System (ESS), fencing, access tracks, construction compounds, security measures, and landscaping proposals. This list is not exhaustive of all potential components for each proposal.

3.14. Both projects' cable route connection will link into National Grid Bicker Fen Substation to deliver electricity to the national electricity transmission network. Heckington Fen Solar Park requires extension works at National Grid Bicker Fen Substation to accommodate the connection and these works are included in the Order Limits. Beacon Fen Energy Park does not reference within the Scoping Report or PEIR the need for extension works at National Grid Bicker Fen Substation, however it is likely that, as a minimum, a generation bay will need to be accommodated. The Order Limit area for the Beacon Fen site includes land which surrounds the National Grid Bicker Fen Substation. Based on the Alternative Cable Corridors (Figure 3.1) in the Beacon Fen PEIR it appears that the Point of Connection into that National Grid Bicker Fen Substation will be to the north. However, this is not definitively confirmed in the PEIR. The two projects are separate and promoted through different Applicants.

3.15. The two projects have the main solar and energy storage sites within North Kesteven, and the Cable Route Corridors span across North Kesteven and Boston Borough. The two main solar and energy storage sites are approximately 3.3km apart, with the Cable Route Corridors overlapping each other in part – see **Figure 1.2**. It should be noted that the Cable Route Corridor for Beacon Fen Energy is likely to be further refined to a smaller search area as the design of the site progresses and is prepared for submission as a DCO application. Therefore, the potential area of overlap for the two cable routes could significantly reduce.

3.16. Currently there is an overlap on the southern section of the Offsite Cable Route Corridor and the preferred cable route option for Beacon Fen. The Heckington Fen DCO has assessed the potential impacts of Indicative Drill Locations for cabling within the Energy Park and the Offsite Cable Route Corridor. Within the area of where the Order Limits of the two sites overlap there are 13No. Indicative Drill Locations for the laying of the offsite underground cable route (Drill Locations A20-A29 and B1-B3) Document Reference (PS-089). These Indicative Drill locations have been assessed in the Proposed Development as either having the potential for an HDD or a similar technology or an 'open cut' to allow the cabling to laid. At Deadline 5 the Applicant has submitted a 'Joint Position Statement with Beacon Fen Energy Park Ltd' (document reference: ExA.JPSBeaconFen.D5.V1). The Applicant has confirmed that all cabling laid for the Heckington Fen application will run within a separate ducting system to that of Beacon Fen Energy Park. It can therefore be concluded the two schemes will not utilise the same HDD drills or open cut cable trenches as assessed in the Proposed Development ES. Therefore, no cumulative assessment has taken place between these two sites to determine the potential environmental impacts of these two schemes using the same indicative drill locations. The Beacon Fen PEIR makes no reference to the possible locations of drill locations within the overlapping sections of the cable routes.

3.17. The construction timelines of both projects have the potential to interact with both projects expected to be under construction throughout 2026 (site preparation works for the Proposed Development could take place in 2025). Heckington Fen Solar Park construction will be for an estimated 30-month period, and Beacon Fen Energy Park will be for an estimated 24–36 month period. Given that no project yet has consent, all timescales are indicative.

3.18. The construction haulage route to the Heckington Fen Energy Park, as part of the Proposed Development, will utilise the A17, a single carriageway principal road routed between Newark-on-Trent to the north and Kings Lynn to the south, and enter into a new priority junction access point for the Energy Park- see **Figure 1.2**. The construction haulage route to National Grid Bicker Fen Substation for the extension works associated with the Proposed Development will also follow the same construction route to the A17 where it will exit the public highway and utilise the existing Triton Knoll Access Track. This route will be used by both construction vehicles associated with the Applicant's Works (Works No 6a) and NGET's works (Works No 6b and 6c). In emergency situations or at times when the Triton Knoll Access Road is blocked or impassible, NGET reserve the right to use the existing National Grid Bicker Fen Substation access road and access and egress the site via Cowbridge Road, Bicker Drove and Vicarage Drove – see **Figure 1.2**.

3.19. The PEIR for Beacon Fen Energy Park has extended its proposed Order Limit area to include the land needed for a new access road that would link the A17 to the Energy Park. This extension of the proposed Order Limits was first presented as a possibility in a press-release on their project website on the 27th October 2023 entitled "*New access road proposed for Beacon Fen Energy Park"*. **Figure 1.1** and **Figure 1.2** of this document have been updated to include this expanding Order Limit area. The Beacon Fen PEIR states that this haul road would be built for construction only and then removed. It would not remain in place for the operational phase of the Beacon Fen Energy Park. The use of this Haul Road is called 'Option 2' and is their preferred option, although they are currently undertaking Statutory Consultation on a number of access options.

3.20. It is confirmed in the Transport and Access cumulative update in **ES Technical Note- Updated Information on Cumulative Projects** (document reference ExA.ESTN-Cumulative-D5.V4) that if construction timelines were to overlap and both developments were to utilise the A17 for construction haulage routes and Beacon Fen did not progress with the construction haul road traffic flow volumes along the Highway would not be of significant effect.

3.21. As noted in paragraph 3.14 of this document, Beacon Fen Energy Park's PEIR does not explicitly identify the need for extension works at National Grid Bicker Fen Substation. However, the order limits currently extend beyond the boundary of the National Grid Bicker Fen Substation. In the event construction works are required at the Bicker Fen substation, the potential construction haulage route would likely use the construction route of the A52 and A17 roundabout where it will turn onto the A52 towards Bicker. It is anticipated that the majority of construction traffic will use the existing National Grid Bicker Fen Substation access road and access and egress the site via Cowbridge Road, Bicker Drove and Vicarage Drove. . The Order Limits for Beacon Fen also included a section of (but not the full extent of) the exiting Triton Knoll access road. The extent of the private Triton Knoll access road included within the Order Limits can be seen on Figure 1.3 Site Area Plan within the Beacon Fen PEIR. This road is not public highway, but its inclusion in the Order Limits indicates that the Beacon Fen Applicant may wish to utilise this route for construction traffic for the cable route. The section of the Triton Knoll Access Track included within the Order Limits for Beacon Fen does not extend onto the public highway to the south and, thus, does not extend to the National Grid Bicker Fen Substation. It has therefore been concluded that construction traffic for National Grid Bicker Fen Substation will not utilise this access track. This conclusion is reiterated by the detail within the Beacon Fen PEIR which lists in Table 9.10 that vehicles with a destination of National Grid Bicker Fen Substation will use the A17.A52 and National Grid Haul Route.

3.22. The assessment of traffic flows in **Chapter 14: Transport and Access** (document reference 6.1.14/ PS-073) of the ES for the Proposed Development has assessed that 100% of trips for the National Grid Bicker Fen Substation extension works are associated with the Heckington Fen generation bay (Work no. 6A of the **Works Plan** (document reference 2.2/PS-014)). In reality, it is likely that only 20% of the overall substation construction traffic will be attributed to the Applicant's generation bay (Work No.6A), and the other 80% is for the NGET extension (Work No.6B and 6C), of which some of this infrastructure will become integral to other connection bay users, such as Beacon Fen Energy Park. The assessment showed for 100% of trips that the increase in traffic flows was not significant.

3.23. At Deadline 5 the Applicant submitted a further ES Technical Note: Assessment of Triton Knoll Access Track, Doubletwelves Drove and Bicker Drove (document reference: ExA.ESTATN-Access-D5.V1). This document assessed the impact of the Applicant's and NGET's use of the Triton Knoll Access Track from construction traffic associated with the extension of the National Grid Bicker Fen Substation (Work Nos. 6A, 6B and 6C). This further assessment was completed at Deadline 5 due to progression of legal discussions with NGET whilst the Heckington Fen Application has been at Examination. This assessment concluded that no cumulative assessment with the Beacon Fen DCO proposal could take place from traffic movements along the Triton Knoll Access Road as the PEIR offers no information on if any vehicles will be using this access road. In addition, the PEIR boundary does not include the southern section of the private Triton Knoll Access Track, nor the public highway of Doubletwelves Drove and Bicker Drove. Furthermore, the Beacon Fen PEIR states in Table 9.10 of the Transport and Access assessment that construction traffic vehicles for works at the National Grid Bicker Fen Substation will be using the A17, A52and National Grid Haul Route.

4. Approach taken by the Applicant to coordinate the Proposed Development with other projects

4.1. This section of the document provides an overview of the approach taken by the Applicant to coordinate the Proposed Development with Beacon Fen Energy Park, including during Examination.

4.2. The Proposed Development and Beacon Fen Energy Park are on differing timelines. A Scoping Report for Beacon Fen Energy Park was submitted to the SoS on the 19th April 2023. At the point in which the Beacon Fen Energy Park Scoping Report was submitted, the Heckington Fen Solar Park DCO application had been submitted and accepted for Examination (13th March 2023), with registration of Interested Parties taking place between 14th April 2023 and 9th June 2023. As explained above, Beacon Fen Energy Park commenced Statutory Consultation on 22nd January 2024 and will run till 3rd March 2024. The Heckington Fen Examination is preparing documents for submission at Deadline 5, with the Examination due to close no later than 19th March 2024. As the Heckington Fen Solar Park is now well progressed through the Examination stage, the timelines of the design evolution of the two projects have not overlapped. Where possible the Applicant has engaged with the applicants of Beacon Fen to discuss design and the possible limited interaction between individual applicants to coordinate the projects.

4.3. The main site locations inclusive of the solar PV panelled areas and Energy Storage Systems (ESS) for each project are located on distinct and separate sites, approximately 3.3km apart. As the Scoping Report for Beacon Fen Energy Park was submitted after the Heckington Fen Solar Park DCO application, the Beacon Fen Energy Park site was not initially cumulatively assessed in the submitted ES. Subsequent to Issue Specific Hearing 2, on the 20th September 2023, for the Proposed Development's Examination, it was confirmed the ES cumulative assessment should be updated at Deadline 2 and updates should be ongoing throughout the Examination to take into account any updates to applications on the long list and shortlist, and re-evaluate any new, relevant applications (NSIP and TCPA) to be included within the cumulative assessment. The Beacon Fen Energy Park DCO application was included.

4.4. Based on the most recent design stage of Beacon Fen Energy Park, the Cable Route Corridor of both projects has the potential to overlap and interact. In general, the Cable Route Corridors are mostly distinct and separate, however, they overlap in an area between Loverose Lane and Timms Drove, and then again further south between Lowgrounds Farm off Tilebarn Lane and Hammond Beck where the grid connection location for both projects is at National Grid Bicker Fen Substation. The areas of this overlap can be seen on **Figure 1.2**: Heckington Fen Solar Park and Beacon Fen Energy Park Interrelationship Layout Plan. The Outline Construction Traffic Management Plan (document reference 7.10/ Revision 5) has been updated at Deadline 5 to include an obligation on the Applicant to notify Beacon Fen Energy Park of works in areas of potential construction traffic overlap.

4.5. With this in mind and despite the difference in stages, both applicants for Heckington Fen Solar Park and Beacon Fen Energy Park are open and willing to collaboratively work together to understand project interactions and explore the potential for sharing a cable route connection and reduce impacts. This was confirmed in an email exchange between applicants subsequent to the targeted consultation response from Beacon Fen Energy Park Ltd on the 11th August 2023 as part of Heckington Fen Solar Park's Change Notification Consultation. Subsequent email exchanges have taken place between both parties regarding

the interaction of the Cable Route Corridors. At Deadline 5 the Applicant submitted a 'Joint Position Statement with Beacon Fen Energy Ltd'. This confirms this willingness to continue to work together to enable the deliverability of both schemes (if both granted consent). There is also a willingness to share survey data for areas of overlap along the Offsite Cable Route Corridor to avoid repetition of survey work.

4.6. The parties have also agreed protective provisions and the Applicant has included these for the benefit of Beacon Fen Energy Park Limited at Part 11, Schedule 13 of the DCO (document reference 3.1, revision 7). These protective provisions confirm that the Applicant will engage with Beacon Fen in advance of works within the cable route interface and surrounding area, as shown on the Interface Area Plan submitted at Deadline 5 (document reference: ExA.BFInterface.D5.V1); the parties must co-operate in the formulation of proposed methods of working and the timing of the execution of works. A reciprocal set of protective provisions will be included in the Beacon Fen Order if and when the Beacon Fen application is submitted. The parties also expect to enter into a Co-operation Agreement to build upon the protective provisions in more detail.

4.7. Given that Beacon Fen Energy Park have not yet submitted a DCO Application, they have not produced a similar Interrelationship Report. The Beacon Fen PEIR has considered cumulative impact and has prepared a cumulative short list (Appendix 4.2 in PEIR). this document therefore has considered the findings of their cumulative assessments when presented in the PEIR. The final conclusions within this document have been reached through the assessment by the Heckington Fen Solar Park technical experts; it has not been completed in collaboration with any of the other DCO applicants.

5. Shared Development Consent Order Provisions with other projects

5.1. This section sets out the DCO provisions required for the Proposed Development to be implemented satisfactorily in relation to Beacon Fen Energy Park.

5.2. As set out in Section 4, the main site locations inclusive of the solar PV panelled areas and Energy Storage Systems (ESS) for the Proposed Development and Beacon Fen Energy Park are distinct and separate sites, with no overlap. The Cable Route Corridors for both proposals are mainly distinct and separate. However, there is an area along the southern sections of the Cable Route Corridors that overlap, from the initial point of overlap to the grid connection location of both projects at National Grid Bicker Fen Substation.

5.3. The DCO application for Beacon Fen Energy Park has not yet been made and therefore no protective provisions or powers sought have been drafted in relation to Beacon Fen Energy Park at this point in time of writing this report (correct February 2024).

5.4. The Applicant welcomes confirmation from Beacon Fen Energy Park in a written representation that it will include protective provisions for the benefit of the Applicant in its draft DCO regarding the area of potential overlap in the Cable Route Corridor. As the Applicant outlines above, given the early stage of the Beacon Fen proposals, and whilst there is no apparatus or assets in situ, the Applicant has included bespoke Protective Provisions for the benefit of Beacon Fen within its draft DCO updated at Deadline 5 (document reference 3.1, revision 7). A letter of comfort has been provided by Beacon Fen Energy Park Ltd that reciprocal Protective Provisions will be included in their draft DCO for the benefit of Heckington Fen Solar Park..

Phasing and Discharge of Requirements

5.5. Requirement 3 of the Applicant's DCO provides that the Applicant must submit a phasing plan prior to commencement of the Proposed Development. It is likely that the Offsite Cable Route works will be a standalone phase, or a set of sub-phases. The majority of the Requirements are drafted so that the final control plans must be submitted for approval prior to commencement of a phase (for example, Requirement 6, 8, 10, 11, 12(2), 13, 14 and 20). Therefore, the only potential overlap is likely to be for the Offsite Cable Route phase(s).

5.6. Whilst the final plans submitted for discharge must be substantially in accordance with the outline plans (where relevant), there is the ability to incorporate additional measures or necessary controls at the time of submitting the final plans prior to commencement of that phase. Therefore, to the extent necessary, the Applicant can include any relevant supplementary detail or controls to govern the overlap with Beacon Fen within its final plans for discharge. It is expected that the only plans this will be relevant for is the Construction Traffic Management Plan and the Construction Environmental Management Plan.

6. Shared Mitigation Measures with other projects

6.1. This section outlines the mitigation measures to be shared with Beacon Fen Energy Park and how they are secured in the draft DCO.

6.2. At the time of writing this report (correct as of February 2024), the DCO application for Beacon Fen Energy Park has not yet been submitted; the project has commenced Statutory Consultation on 22nd January 2024. The PEIR is available for the scheme and has been reviewed to determine if there are any shared mitigation measures applicable to incorporate.

6.3. A Joint Position Statement with Beacon Fen Energy Park Ltd (document reference ExA.JPSBeaconFen.D5.V1) is submitted at Deadline 5. This document sets out that whilst recognising that the projects are at different stages of the design and consenting process, it is identified that there are certain areas of potential overlap between both projects Order Limits. Therefore, both parties are engaged on how to best manage those interface areas. An agreed set of Protective Provisions is therefore included in the Heckington Fen draft DCO (document reference 3.1/ revision 7) submitted at Deadline 5. These are found at Part 11, Schedule 13 of the draft DCO, together with the Interface Area Plan (document reference ExA.BFInterface.D5.V1) to which the provisions relate and is a certified plan of the draft DCO. A letter of comfort has been provided by Beacon Fen Energy Park Ltd to the Applicant that reciprocal Protective Provisions will be included in their draft DCO for the benefit of Heckington Fen Solar Park. Additionally, Beacon Fen Energy Park Ltd intend to enter into a co-operation agreement with the Applicant no later than September 2024.

7. Any other information on the other projects relied on for the Cumulative Impact Assessment

7.1. This section sets out information on Beacon Fen Energy Park relied upon for the cumulative impact assessment, the level of detail, and any other changes since the application for the Proposed Development was submitted.

7.2. Beacon Fen Energy Park's Scoping Report was submitted on the 19th April 2023, this was after the Heckington Fen Solar Park DCO application submission of the 15th February 2023. The cut off point of updating the cumulative long list and short list for the production of Inter-Project Cumulative Assessment in the ES for the Proposed Development was 31st December 2022 for Revision 1. Subsequently, at Deadline 2 an updated cumulative assessment was provided, superseding the cumulative assessment undertaken as part of the original ES. The **ES Technical Note- Updated Information on Cumulative Projects** (document reference ExA.ESTN-Cumulative-D5.V4) encapsulates other NSIP or TCPA projects of relevance that were not included in the original Proposed Development's DCO application, and this includes a cumulative assessment between Beacon Fen Energy Park and the Proposed Development

7.3. A cumulative assessment was undertaken in Revision 3 of this document, with input from the Heckington Fen Solar Park ES technical chapter authors, to assess the potential cumulative effects between Beacon Fen Energy Park and Heckington Fen Solar Park. Revision 3 of this document has aligned the commentary below to the full cumulative assessment undertaken in the **ES Technical Note- Updated Information on Cumulative Projects** (document referenceExA.ESTN-Cumulative-D5.V4). To avoid duplication of content between reports, the assessment below remains summarised.

7.4. The Scoping Report for Beacon Fen Energy Park had been relied upon in the **ES Technical Note- Updated Information on Cumulative Projects** (document reference ExA.ESTN-Cumulative-D5.V4 . It was confirmed in the Summer 2023 newsletter that the 'Beacon Fen South' site has been withdrawn, and therefore only a comparison is made to the 'Beacon Fen North' site and grid connection route. The Scoping Report was limited in some information with no assessment work or only initial assessment work carried out for some topic areas. The PEIR which has been published as part of the Statutory Consultation has offered more detail on many of the environmental topics and the proposed layout of the Beacon Fen site. However, the design of the site remains subject to change and evolution as it moves through the assessment process. The information below has considered the cumulative impact of construction taking place of the two schemes at the same time as the longer operational impacts. Beacon Fen Energy Park currently details their estimated construction programme starting in 2026-2027 (and running for 24-36 months) with the Proposed Development's estimated construction programme running from 2025-2027, to connect in time for an accepted 2027 grid offer from National Grid. Therefore, there is the potential for the construction timeframes to overlap.

Landscape and Visual Cumulative Note

7.5. It is envisaged that there is the potential for significant cumulative visual effects to occur during the construction stage of the offsite cable routes if the two NSIP schemes were built out at the same time, as the two offsite cable route corridors overlap. Any effects, however, are expected to be highly localised, short term and temporary. It is unlikely that the users of local Public Rights of Way located within the West Low Grounds and Bicker Fen, and around

the existing National Grid Bicker Fen Substation, would experience significant adverse effects, given the distance and nature of views gained.

7.6. With regard to the cumulative views of the Beacon Fen Energy Park and the Energy Park Site of the Proposed Development during the construction phase, the analysis presented in **Chapter 6 - Landscape and Visual** (document reference 6.1.6/ PS-058 and PS-059) gives evidence of the very limited to no-intervisibility between the proposed Energy Park and the north western quadrant of the study area. This analysis is further supported by the cumulative analysis within the Beacon Fen PEIR.

7.7. In terms of direct effects upon the landscape features: such as field boundary hedgerows and trees, they are not expected to be significant. A temporary change upon the character of the host landscape: NCA 46 The Fens, and The Fens Regional Landscape Character Type and its associated Fenland Landscape Character Sub-Area would occur. The very limited to no inter-visibility between the Energy Park Site and this part of the study area, coupled with the distance of c. 3.3km between the Beacon Fen Energy Park and the Energy Park Site – i.e., located just outside of the defined Zone of Influence, ensures that such temporary effects would not be significant during the construction phase. With regard to the cumulative views of the Beacon Fen Energy Park and the Energy Park Site during the construction phase, the analysis presented in **Chapter 6 - Landscape and Visual** (document reference 6.1.6/ Rev 3) gives evidence of the very limited to no-intervisibility between the proposed Energy Park and the north western quadrant of the study area. The above conclusion is also supported by the Beacon Fen Energy Park PEIR with the associated PEIR LVIA Chapter 6 identifying one preliminary viewpoint~~s~~ within South Kyme Fen, i.e., the landscape between the solar array and the Proposed Development.~~,~~ This preliminary viewpoint is Viewpoint 3 which is located to the south of South Kyme. Appendix 6.4 to the Beacon Fen Energy Park PEIR Chapter 6 has identified a low magnitude of change and negligible effects upon Viewpoint 3, during the construction stage. This is informative and confirms the Proposed Development's assessment that there is no potential for any significant cumulative visual effects to occur during the construction phase.

7.8. It is envisaged that the cable route for the Beacon Fen Energy Park will be detailed further in the DCO application, similarly to the Proposed Development, thus will eventually be narrower than the currently proposed route. There is a section of the offsite cable route which follows a similar route to the Proposed Development offsite cable route corridor. In this section of the Offsite cable route corridor the Applicant has assessed that there will be some highly localised, very limited and not significant adverse effect upon the hedgerow and tree resource within the Order Limits from the Proposed Development. The cumulative scenario where the Beacon Fen Energy Park site is being constructed, may also result in some highly localised and very limited adverse effects upon the hedgerow and trees or grassland resource within its currently proposed offsite cable route corridor.

7.9. Taking the two cumulative schemes into consideration, the cumulative effects brought about by the proposed overlap of the offsite cable route corridor and the extension works to the National Grid Bicker Fen substation would not be significant in cumulative terms as the quantum of the vegetation removed as part of the Proposed Development is limited. Furthermore, the Proposed Development was assessed as bringing about a major beneficial effect on the hedgerow resource with a moderate beneficial effect upon the tree resource and grassland within the Order Limits. Therefore, the direct cumulative change upon the landscape elements would not be significant and would not result in any cumulative adverse

significant effects upon these and/or any other landscape elements associated with the Order Limits.

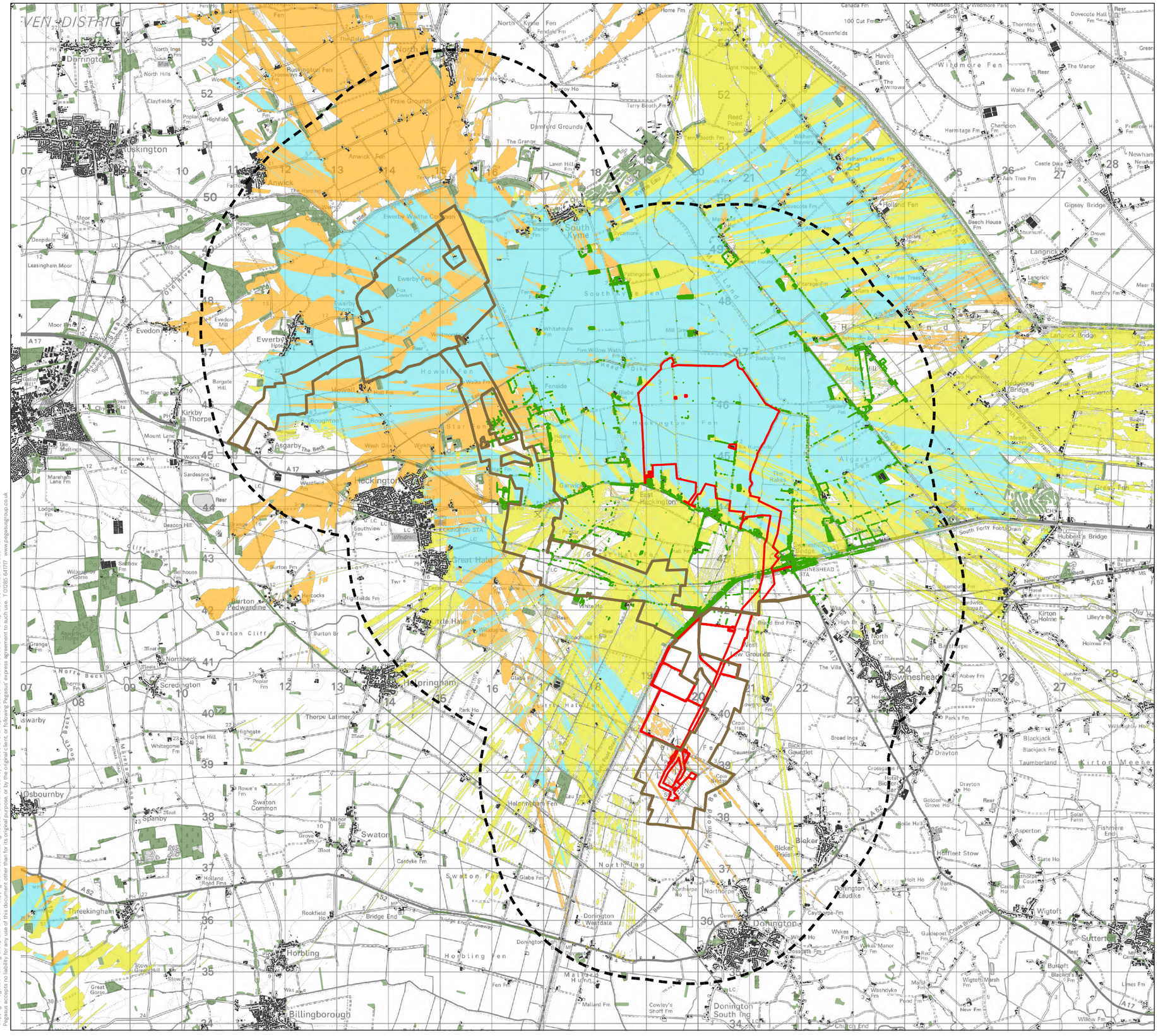
7.10. The construction of the bespoke access road for the Beacon Fen application which is the preferred Access Route Corridor (Option 2) as outlined in their PEIR, and the construction of the solar modules, substation, and ancillary facilities within the Beacon Fen Energy Park site would not cause any cumulative effects, as the associated construction sites do not overlap with that of the Order Limits of the Proposed Development.

7.11. With regard to the operational stage there is the potential that the landscape between the two schemes may be affected to a significant effect. **Figure 1.3** shows the cumulative Screened Zone of Theoretical Visibility (SZTV) for both projects and demonstrates the potential theoretical extent of intervisibility of solar panel infrastructure at both sites. It should be noted that **Figure 1.3** does not demonstrate absolute visibility.

7.12. It is accepted that the addition of the Proposed Development and Beacon Fen Energy Park would cause some highly localised significant effects within the site itself and immediately around it, when judged in isolation. Given the distance between the two schemes the zone of significant landscape character effects is considered to be set sufficiently apart as not to cause any significant cumulative landscape character effects. There is the potential that certain visual receptors, such as the PRoW along the Head Dike may be subject to sequential significant visual effects. The majority of the viewpoints, located in this part of the study area – between the cumulative Beacon Fen Energy Park and the Proposed Development, will not be subject to significant visual residual effects. The more distant viewpoints in the north eastern and south western quadrant of the study area will not be subject to significant visual effects. The receptors located within the south eastern quadrant and around the existing Bicker Fen Substation will not be subject to any significant visual effects as the operational stage of the grid connection will be underground.

7.13. Therefore, the Proposed Development and Beacon Fen Energy Park will not cause significant cumulative effects upon the character of the local landscape or visual receptors associated with this area.

7.14. The above conclusion is supported by the Beacon Fen Energy Park PEIR LVIA Chapter 6, which states in its paragraph 6.9.25: *"The cumulative landscape effects at the regional scale will not be significant due to the limited extent of the Schemes within the landscape of the NCA."*



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KEY

- Heckington Fen Solar Park (EN010123)
- Beacon Fen Energy Park (EN010152)
- Study Area
- National Tree Map Data
- OS Local Woodland
- OS Local Buildings

Screened Zone of Theoretical Visibility Outputs

- Heckington Fen Solar Park Solar Elements Visible Only
- Beacon Fen Energy Park Solar Elements Visible Only
- Heckington Fen Solar Park and Beacon Fen Energy Park Solar Elements Visible

Screened ZTV Production Information –
The SZTV has been produced using multiple datasets to create a DSM (Digital Surface Model). These have been combined together accurately using ESRI GIS software. The following datasets have been used to create the DSM–

- OS Terrain 5 used as the base DTM (Digital Terrain Model) This is a 5m grid dataset.
- Bluesky's National Tree Map (NTM) This is a detailed dataset covering England and Wales. It provides a comprehensive database of location, height and canopy spread for every single tree 3m and above in height. This is created from stereo aerial photography. Heights used within the model are the MAXIMUM heights supplied with the dataset.
- OS Open Map Local Woodland - used to model vegetation not covered by the NTM and set to an indicative height of 15m
- OS Open Map Local Buildings - set to indicative 8m height.
- Viewer height set at 1.7m
- Beacon Fen heights set at 4.5m
- Heckington Fen heights set at 3m and 3.5m (in accordance with para 6.11 of GLVIA Third Edition)
- Calculations include earth curvature and light refraction

N.B. This Screened Zone of Theoretical Visibility (SZTV) image illustrates the theoretical extent of where the development may be visible from, assuming 100% atmospheric visibility, and includes the screening effect from vegetation and buildings, based on the assumptions stated above.

FIGURE 1.3 CUMULATIVE SCREENED ZONE OF THEORETICAL VISIBILITY – HECKINGTON FEN SOLAR PARK AND BEACON FEN ENERGY PARK

DATE	SCALE	SHEET	REVISION
09/02/2024	1:75,000@A3	-	C

DRAWING NUMBER
P20-2370_105

0 3 km

ecotricity

PEGASUS GROUP

Ecology and Ornithology Cumulative Note

7.15. Within the Beacon Fen Energy Park Scoping Report, it is outlined that Beacon Fen Energy Park is dominated by arable land divided by wet ditches. Less frequently there are hedgerows, with woodland blocks and copses occasionally found.

7.16. There are no internationally designated ecology sites, or non-statutory designated sites present within the Order Limits for Beacon Fen Energy Park. The Scoping Reports identifies three internationally designated sites within 20km (Wash Ramsar, Wash Spa and Wash North Norfolk Coast). These three internationally designated sites are considered and identified against Heckington Fen Solar Park.

7.17. There are three nationally designated sites identified within 10km of Beacon Fen Energy Park (Horbling Fen SSSI, Wilsford and Rauceby Warrens SSSI and Sunfleet Lows SSSI). Horbling Fen SSSI is also identified within 10km of the Heckington Fen Solar Park Order Limits.

7.18. There are 12 Local Wildlife Sites present within 2km of Beacon Fen Energy Park. Seven of these overlap with LWS's identified within 10km of Heckington Fen Solar Park (Evedon Wood, Great Hale Eau, Horbling Fen, Old Forty Foot Drain, South Forty Foot Drain, Broadhurst Drain, Willow Farm Drain).

7.19. The Beacon Fen Energy Park outlines the design of the development will be guided to avoid ecological impacts. The PEIR outlines expected impacts during the construction, operation and decommissioning of the energy park, cable route and works at National Grid Bicker Fen substation. The Heckington Fen Proposed Development has determined that there will be not significant residual effects to ecological receptors during construction. During operation significant effects are recognised at a 'local level' for woodland, but in terms of EIA significance 'local level' effects are not attributed as an EIA significant effect. Therefore, the Proposed Development has no operational significant effects.

7.20. The cumulative assessment of all of the site with the ES cumulative assessment shortlist identified that all of these solar farms would use approximately 7,000ha of land, which represents a loss of approximately 1.5% of farmland habitat in Lincolnshire. This loss could have impacts upon a reduced habitat resource for ground nesting birds including both Skylark and Yellow Wagtail, both of which have been recorded at Heckington Fen. Heckington Fen has included mitigation measures that avoid, retain and mitigate the impact of a reduction in habitat for these ground nesting bird species. These mitigation measures ensures that Heckington Fen will not result in a residual adverse effect on ground nesting bird species.

7.21. The Beacon Fen PEIR identifies that mitigation for ground nesting birds will be provided in the submitted scheme to ensure that no impacts occur. Mitigation will focus on minimising, restoring and compensating for impacts that cannot be avoided. The expectation is that for developments yet to be granted Development Consent, such as Beacon Fen, there will be a need to achieve a minimum of 10% Biodiversity Net Gain within their site design. Sufficient mitigation and or enhancement is expected to be provided to ensure there are no significant effects. As such it is considered that the proposed cumulative developments will, like Heckington Fen, also not have a significant adverse effect on the ecological receptor of ground nesting birds, or the habitat required by ground nesting bird populations.

Cultural Heritage Cumulative Note

7.22. The Beacon Fen Energy Park PEIR names designated heritage assets within 5km of the Order Limits (specifically the cable route). The Beacon Fen Assessment determines that through its Screened Zone of Theoretical Visibility (sZTV) indicates that the scheme would be visible from 3No. heritage assets which have also been assessed in the Proposed Development Chapter 10: Cultural Heritage (document reference: APP-063). These 3No. assets are:

- Roman Settlement of Holme House, a Scheduled Monument
- Kyme Tower, Grade I Listed Building
- Mill Green Farmhouse, a non-designated heritage asset

7.23. . Considering **Figure 1.3** with reference to the location of the designated heritage assets scoped into the assessment of indirect development effects as part of the Proposed Development's ES Cultural Heritage Chapter, it is noted that both developments would be visible from the Scheduled Roman Settlement of Holme House, the Grade I Listed Kyme Tower, and the non-designated Mill Green Farmhouse.

7.24. For the Proposed Development, minor harm was identified only for Mill Green Farmhouse – arising through change to landscape character of part of its historic agricultural landholding as experienced in designed views from the primary (south-facing) elevation of the asset across the northern part of the Proposed Development's Energy Park. There appears to be no historical or direct visual association between Mill Green Farmhouse and the land proposed for the Beacon Fen North site. As such, it is considered that Beacon Fen North site does not contribute through setting to the significance of Mill Green Farmhouse, and so any intervisibility of Beacon Fen North and the asset would be largely incidental. No cumulative effect is anticipated.

7.25. For the Proposed Development, it is considered that neither the Energy Park site nor the Cable Route contribute through setting to the significance of the Roman Settlement. Although no setting assessment for this asset is yet publicly available for Beacon Fen Energy Park, there are considered to be no possible cumulative effects with the Proposed Development as no harm has been anticipated from the Proposed Development.

7.26. For Heckington Fen Solar Park, some visibility of the Energy Park site is anticipated in certain views from and towards Kyme Tower. This is considered largely coincidental of the flat, low-lying landscape context and it is considered that the Energy Park does not contribute through setting to the significance of Kyme Tower. Although no full setting assessment for this asset is yet publicly available, the Beacon Fen Energy Park PEIR indicates there will be intervisibility of this scheme and Kyme Tower. The PEIR assessment concludes there will be a Moderate Adverse effect from Beacon Fen Energy Park on Kyme Tower. The PEIR state in Chapter 8 *"The impact will be through a visual change in the wider landscape, including the key view to the west, towards Ewerby Thorpe. This view will see an alteration in the landscape from arable fields to containing energy infrastructure. Mitigation is proposed through landscaping and retention of the field formations."* This Moderate Adverse effect from the Beacon Fen energy park does not result in cumulative effect with the Proposed Development as 'no harm' has been anticipated through the heritage assessment from the Proposed Development.,

7.27. This lack of cumulative impact on Kyme Tower is also recognised in the Beacon Fen Energy Park PEIR Chapter 8 (Cultural Heritage), in its assessment of cumulative effects with the Proposed Development (paragraph 8.9.10).

7.28. The Beacon Fen Energy Park Cable Route corridor could interact and cross the Proposed Developments Cable Route Corridor. The possible interacting areas have not yet been fully evaluated by the Proposed Development's own archaeological trial trenching. Requirement 12 of the draft DCO ensures a written scheme of archaeological investigation will need to be approved by Lincolnshire County Council before works can be carried out on this area (as well as those areas in which archaeological evaluation is yet to be undertaken). However, no significant archaeological remains are anticipated on the basis of the results of the desk-based assessment and a geophysical survey undertaken for the Proposed Development. The Outline Written Scheme of Investigation – Mitigation (document reference 7.14 / APP-245) makes provision for/commitment to mitigation should archaeological remains of interest be encountered by the forthcoming works. The residual effect is expected to be no more than minor harm to significance. Should archaeological remains of interest (also) be encountered by potential archaeological investigations carried out for the Beacon Fen Energy Park, mitigation would similarly be required.

7.29. In summary, a minor cumulative effect (not significant) has been identified for archaeology in relation to the areas where the Beacon Fen Energy Park Cable Route intersects with the Offsite Cable Route Corridor for the Heckington Fen Proposed Development. No cumulative effects have been identified for archaeology or built heritage in relation to any scheme listed in Table 1.1.

Transport and Access Cumulative Note

7.30. Within the Beacon Fen Energy Park PEIR, details were provided that indicated various options for construction access to the Energy Park site, proposed construction traffic routes and predicted traffic flows for both construction and operation of the Energy Park site. The PEIR also confirmed that the creation of a new haul road for construction traffic had been progressed and was now included within the extended Order Limit area, as Option 2 for access to site. The PEIR indicated that this new haul road option was the Beacon Fen applicant's preferred choice, but Statutory Consultation would consider this further. The PEIR also states that this new haul road is temporary and would be removed when construction of the Energy Park is complete. Operational traffic for the Beacon Fen Energy Park would use the existing smaller public highway roads to gain access to their Energy Park for operation and maintenance. The new haul road for construction access is from Heckington Road, linking to the A17. This would operate a left in left out protocol and so all construction traffic would pass the access point for Heckington Fen which is also on the A17..

7.31. The Beacon Fen Energy Park PEIR does contain anticipated vehicle movements (Table 9.10 of PEIR). It also confirms that the size of the northern site is 512 hectares, with a further 903 hectares for the offsite cable route and 125.4ha for the haul road. The Energy Park site area for the Heckington Fen Solar Park is a comparable 524 hectares. Appendix 3- Cumulative Traffic Assessment of the **ES Technical Note- Updated Information on Cumulative Projects** (document reference ExA.ESTN-Cumulative-D5.V4) details the forecast vehicle movements associated with Beacon Fen Energy Park.

Traffic Flows

7.32. Table 14.9 of **Chapter 14: Transport and Access** (document reference 6.1.14/PS-073) confirms the AADT and HGV trips for the busiest times during the construction period of the Energy Park, off-site cable route and Bicker Fen Substation extension. These equate to an AADT of 104 vehicles and 39 HGVs at links one to three and 15 vehicles and 10 HGVs at links four to seven. **Appendix 3** confirms the forecast AADT and HGV trips for cumulative sites 3 (Boston Alternative Energy), 9 (Temple Oaks DCO) and 12 (Beacon Fen DCO) individually, and also the cumulative traffic impact at each of the highway links considered as part of this cumulative assessment. This equates to an AADT of 428 vehicles including 185 HGVs at links one to three and an AADT of 30 vehicles including 20 HGVs at links four to seven.

7.33. When assessed against the criteria at Table 2.1 of **ES Transport and Access Technical Note – Sensitivity of Cowbridge Road, Bicker Drove and Vicarage Drove** (document reference ExA.ESTATN.D3.V1), the cumulative number of vehicles/HGVs at links one and seven are likely to be considered negligible; the cumulative number of vehicles/HGVs at links two and three are likely to be considered Low; and the cumulative number of vehicles/HGVs at links four to six are likely to be considered High.

7.34. When the magnitude of impacts are cross referenced to the significance matrix at Table 14.3 of **Chapter 14: Transport and Access** (**document reference 6.1.14/PS-073**), this confirms that the significance of effect is likely to be **Negligible** at links one and seven; Moderate at links two and three; and Major at links four to six.

7.35. During the construction phase there will be cumulative direct, short-term, temporary, negative effects on traffic flows. Overall, there is likely to be a Major level of impact significance at some links, and therefore Significant effects in EIA terms, without mitigation.

7.36. The 2023 IEMA guidance states at paragraph 3.9 that the impact of traffic and movement will vary for each type of impact and at paragraph 3.11 confirms that the assessment may depend on description and judgement rather than any commonly agreed method. It is Pegasus Group's professional judgement that the percentage increase in trips at links four to six is skewed by the current very low traffic flows on these roads as shown in Table 13.3 of the ES Technical Note: Cumulative Site Assessment (document reference: ExA.ESTATN-Access-D5.V1).

Mitigation

7.37. Over the course of the Examination discussions' have been ongoing with NGET regarding their use of the Triton Knoll Access Track for their construction traffic associated with the extension to the National Grid Bicker Fen substation. The use of the Triton Knoll access track by NGET for all trips associated with the construction of the extension of National Grid Bicker Fen Substation for the Proposed Development has been assessed at Deadline 5 and a separate Technical Note (**ES Transport and Access Technical Note – Assessment of Triton Knoll Access Track, Doubletwelves Drove and Bicker Drove).** This confirms that NGET reserve the right to use the existing route via the A52,- and links four to six in the event of an emergency or Triton Knoll access track being blocked or impassable, but that otherwise links four to six would not be used during the construction phase of works to the extension of the Bicker Fen Substation associated with the Heckington Fen Energy Park.

7.38. Removal of construction traffic associated with the Heckington Fen Proposed Development from links four to six due to this agreement and the ability to utilise the Triton Knoll Access

Track due the drafting of the DCO mitigates the major adverse significant impact from increased traffic flows in construction on links four to six.

7.39. The Outline Construction Management Plan (OCTMP) which is secured by Requirement 14 of the DCO, sets out this mitigation measure and how it will be implemented during the construction phase for the Proposed Development. A similar OCTMP document is likely to be secured for Beacon Fen if it were to be granted consent.

7.40. Due to this mitigation if this Applicant and NGET use the Triton Knoll Access Track to construct the extension at Bicker Fen Substation there will be no cumulative effects on either links four to six or on the Triton Knoll Access Track. This conclusion is made on the basis that Beacon Fen PEIR and Order Limits do not include the full extent of the private Triton Knoll Access Track.

7.41. It is considered that the OCTMP mitigation measures, in combination with the mitigation measures secured by the Beacon Fen, are sufficient to address the cumulative significant effects.

Severance

7.42. When severance is assessed against with the cumulative sites, the cumulative severance at links one to three and link seven are likely to be considered Negligible and the cumulative severance at links four to six are likely to be considered High. When Magnitude of impacts summarised at paragraph 3.188 are cross referred to the significance matrix at Table 14.3 of **Chapter 14: Transport and Access** (document reference 6.1.14/PS-073), this confirms that the significance of effect is likely to be Negligible for severance at links one to three and seven and Major for total vehicles at links four to six.

7.43. During the construction phase there will be cumulative direct, short-term, temporary, negative effects on severance. Overall, there is likely to be a Major level of impact significance at some links, and therefore Significant effects in EIA terms, without mitigation.

7.44. The 2023 IEMA guidance states at paragraph 3.16 that *'caution needs to be observed when applying these thresholds as very low baseline flows are unlikely to experience severance impacts even with high percentage changes in traffic'*. It is Pegasus Group's professional judgement that the percentage increase in trips at links four to six is skewed by the current very low traffic flows on these roads.

7.45. The Outline Construction Management Plan (OCTMP) which is secured by Requirement 14 of the DCO, sets out mitigation measures to be implemented during the construction phase for the Proposed Development. A similar document will be secured for Beacon Fen if it were to be granted consent. It is considered that the OCTMP mitigation measures, in combination with the mitigation measures secured by the Beacon Fen, are sufficient to address the cumulative significant effects.

Driver Delay

7.46. The cumulative driver delay at links one and seven is likely to be considered Negligible; the cumulative driver delay at links two and three is likely to be considered Low; and the cumulative driver delay at links four to six is likely to be considered High. When the magnitude of impacts summarised at paragraph 3.193 are cross referred to the significance matrix at Table 14.3 of **Chapter 14: Transport and Access** (document reference 6.1.14/PS-073), this

confirms that the significance of effect is likely to be Negligible at links one and seven, Moderate at links two and three and Major at links four to six .

7.47. During the construction phase there will be cumulative direct, short-term, temporary, negative effects on driver delay. Overall, there is likely to be a Major level of impact significance at some links, and therefore Significant effects in EIA terms, without mitigation. However, as per the magnitude of impact associated with the number of vehicles/HGVs and severance, it is Pegasus Group's professional judgement that the percentage increase in trips at links four to six is skewed by the current very low traffic flows on these roads.

Mitigation

7.48. Over the course of the Examination discussions' have been ongoing with NGET regarding their use of the Triton Knoll Access Track for their construction traffic associated with the extension to the National Grid Bicker Fen substation. The use of the Triton Knoll access track by NGET for all trips associated with the construction of the extension of National Grid Bicker Fen Substation for the Proposed Development has been assessed at Deadline 5 and a separate Technical Note (**ES Transport and Access Technical Note – Assessment of Triton Knoll Access Track, Doubletwelves Drove and Bicker Drove).** This confirms that NGET reserve the right to use the existing route via the A52,- and links four to six in the event of an emergency or Triton Knoll access track being blocked or impassable, but that otherwise links four to six would not be used during the construction phase of works to the extension of the Bicker Fen Substation associated with the Heckington Fen Energy Park.

7.49. Removal of construction traffic associated with the Heckington Fen Proposed Development from links four to six due to this agreement and the ability to utilise the Triton Knoll Access Track due the drafting of the DCO mitigates the major adverse significant impact on driver delay in the construction phase on links four to six.

7.50. The Outline Construction Management Plan (OCTMP) which is secured by Requirement 14 of the DCO, sets out this mitigation measure and how it will be implemented during the construction phase for the Proposed Development. A similar OCTMP document is likely to be secured for Beacon Fen if it were to be granted consent.

7.51. Due to this mitigation if this Applicant and NGET use the Triton Knoll Access Track to construct the extension at Bicker Fen Substation there will be no cumulative effects on either links four to six or on the Triton Knoll Access Track. This conclusion is made on the basis that Beacon Fen PEIR and Order Limits do not include the full extent of the private Triton Knoll Access Track and they state within Table 9.10 of the PEIR that they will be using A17, A52 and National Grid haul route for their construction phase.

7.52. It is considered that the OCTMP mitigation measures, in combination with the mitigation measures secured by the Beacon Fen, are sufficient to address the cumulative significant effects.

Cumulative Operational Traffic Flows

7.53. During operation of the Proposed Development the traffic flows could around five trips per day (ten two-way movements per day) (typically a 7.5 tonne van or 4x4 type vehicles). Beacon Fen PEIR states that there could be around 11 HGVs per day AADT (1,000 two-way HGV movements across three months) but the PEIR for Beacon Fen has not accounted, at this stage, for construction worker trips. When operational traffic flows for Beacon Fen,

Heckington Fen and Boston Alternative Energy Facility and Temple Oaks DCO are combined there could be around 95 two-way daily vehicle movements, including 41 HGV trips using the A17 only.

7.54. The total number of cumulative operational trips are forecast to be lower than the AADT and HGVs forecast as part of the construction phase of development, which is forecast to have a negligible impact. It is therefore considered that the impacts of the operational phase of development will also be Negligible (Not Significant).

Cumulative Decommissioning Traffic Flows

7.55. The traffic movements needed for the decommissioning of the Proposed Development are not yet known, but the numbers are likely to be similar to those of the construction process. Therefore, it is considered that the cumulative effects are likely to be in line with the those assessed as part of the assessment on construction traffic (overall Negligible Impact Significance).

Residual Cumulative Effects

7.56. It is considered that through the implementation of the construction traffic mitigation outlined for links four to six there will be a cumulative direct, short- term, temporary effect with an overall **Negligible (adverse)** significance, and therefore **Not Significant** in EIA terms.

7.57. It is considered that during the operational phase of the Proposed Development there will be a cumulative direct, long-term, temporary effect with an overall **Negligible (adverse)** significance, and therefore **Not Significant** in EIA terms.

7.58. It is considered that during the decommissioning phase of the Proposed Development there will be cumulative direct, short term, temporary effects with an overall **Negligible (adverse)** significance, and therefore **Not Significant** in EIA terms.

Noise and Vibration Cumulative Note

7.59. Within the Beacon Fen Energy Park PEIR, an identified study area of the Energy Park site and 300m from the Site Boundary is used for the noise assessment. NKDC did request in their Scoping Response that the study area for noise assessment be increased to include the cable route. To date, the PEIR for Beacon Fen has not included this within their assessment area. They have also not included the full extent of the proposed haul road from the A17. The Proposed Development has assessed an area up to 1.2km from the Energy Park site, and 500m from the Cable Route Corridor and National Grid Bicker Fen Substation.

7.60. The two main solar site areas at their closest point are 3.3km apart. Therefore, receptors are unlikely to be cumulatively affected by construction, operational or decommissioning works. As noted in **Chapter 12 Noise and Vibration** of the ES (document reference 6.1.12/PS-069), beyond a distance of approximately 1km, noise from construction works (within the Energy Park site, Offsite Cable Route Corridor or National Grid Bicker Fen Substation) and operational noise effects from the Proposed Development become negligible. Vibration effects are even more localised and become negligible beyond a distance of around 150m. A distance of 1 km therefore represents the Zone of Influence for direct effects of noise and vibration from construction in terms of this topic.

7.61. It remains that, generally,-none of the cumulative projects are located within such proximity from the Proposed Development that noise-sensitive receptors would be within 1km of both the Proposed Development and any of the cumulative schemes considered. The only exception would be for partial overlap of the cable connection route of some of the projects (such as Beacon Fen) with that of the Proposed Development. However, the associated construction noise and vibration impacts are localised and of relatively short duration, therefore meaning there is a low probability of concurrent works leading to significant impacts.

7.62. There are therefore no predicted direct cumulative effects of noise and vibration from either the construction activities or operation of the Proposed Development.

7.63. However, construction traffic from several of the schemes considered may use certain routes simultaneously. Cumulative construction traffic levels, based on worst-case assumptions, have been reassessed based on the latest information as discussed the section on Transport and Access of this document. here possible, the prediction method of Calculation of Road Traffic Noise (CRTN) [9]been used to calculate the noise effects of construction-related traffic, which are assessed with reference to the Design Manual for Roads and Bridges (DMRB)[10]

7.64. The maximum worst-case cumulative construction traffic on the A17 is assessed to be under 300 light vehicles and under 200 heavy vehicles per average weekday. This still represents a small proportion of the baseline traffic levels. Using the calculation methodology of CRTN, the maximum calculated increase in traffic noise for properties along the A17 would be of 0.2 dB. This remains clearly below 1 dB and therefore corresponds to a negligible effect (not significant), even accounting for the sensitivity of the receptors, based on the criteria set out in Table 12.1 of the ES (document reference 6.1.12/PS-069), which were derived from the DMRB guidance.

7.65. The additional worst-case cumulative construction traffic accessing the National Grid Bicker Fen Substation from the south is assessed to comprise 20 heavy vehicles per day, or 30 vehicles per day in total, The relative impact of this traffic on the A52 is calculated to be 0.1 dB, which would also represent a negligible influence. The traffic on Cowbridge Road, Bicker Drove and Vicarage Drove is too low for the CRTN method to be used reliably. Using the prediction method of BS 5228, based on an average of 2 heavy goods vehicles per hour, would represent noise levels of 58 dB L_{Aeq} this potentially corresponds to a minor effect based on the criteria of Table 12.1 of the ES (document reference 6.1.12/PS-069). If the duration of cumulative traffic at this level was less than 1 month, the effect would reduce to negligible, but in the absence of detailed information at this stage, a longer duration is assumed.

7.66. In conclusion, the potential cumulative effects of construction traffic noise were determined to be negligible to minor adverse which is not significant.

7.67. In conclusion, there is no mitigation required for the cumulative effect of noise and vibration from these schemes.

Air Quality Cumulative Note

[9] HMSO Department of Transport (1998), Calculations of Rod Traffic Noise (CRTN)
[10] Highways England (2019): Design Manual for Roads and Bridges (DMRB) - LA111 – Noise and Vibration, Nov 2019

7.68. Within the Beacon Fen Energy Park Scoping Report, it was proposed Air Quality be scoped out of the EIA as significant effects were not expected to give rise from the development. However, the Scoping Response rejected this proposal and Air Quality has been scoped into the EIA. The PEIR therefore has a chapter that considers the Air Quality implications of the Beacon Fen Energy Park.

7.69. The PEIR has included anticipated construction traffic flows along the A17 for a period of 30 months. Construction vehicles will be routed along the following road network, which will also be used by other cumulative development sites.

- A17 (west and east of the proposed construction access)
- A52 (south of National Grid haul road)
- Cowbridge Road
- Bicker Drove; and
- Vicarage Road

7.70. The predicted cumulative increase along the A52 to Cowbridge Road, Bicker Drove and Vicarage Drove, is anticipated to fall below the EPUK and IAQM screening criterion of >100 HDV AADT outside of an AQMA. Therefore, the impacts on air quality with the cumulative trip generation from site 12 (Beacon Fen) along the A52 are considered to be not significant.

7.71. The use of the Triton Knoll access track by NGET for all trips associated with the construction of the extension of National Grid Bicker Fen Substation for the Proposed Development has been assessed at Deadline 5 and a separate Technical Note (ES Transport and Access Technical Note – Assessment of Triton Knoll Access Track, Doubletwelves Drove and Bicker Drove- ExA.ESTATN-Access-D5.V1) has been submitted. This confirms that NGET reserve the right to use the existing route via the A52, and links four to six (as stated in Table 3.13) in the event of an emergency or matters outside of the parties' control (including the Triton Knoll access track being blocked or impassable), but that otherwise links four to six would not be used during the construction phase of the extension to the Bicker Fen Substation.

7.72. The same cumulative AADT increase of 10 LDVs and 20 HDVs associated with the Bicker Fen Substation extension works, in conjunction with construction routing for Beacon Fen for the A52 to Cowbridge Road, Bicker Drove and Vicarage Drove, would apply if the Triton Knoll access track is used instead for construction traffic. This cumulative increase is anticipated to fall below the EPUK and IAQM screening criterion of >100 HDV AADT outside of an AQMA. Therefore, the impacts on air quality with the cumulative trip generation from Site 12 (Beacon Fen) if considered along the Triton Knoll access track are considered to be not significant.

7.73. However, the predicted cumulative HDVs along the A17 are expected to be above the EPUK and IAQM screening criterion of >100 HDV AADT outside of an AQMA. When considering the potential for a significant impact to air quality as a result of construction traffic associated with the Proposed Development and cumulative development sites, there are other factors which should be taken into consideration.

7.74. Firstly, as outlined in the 'Baseline Conditions' section of **Chapter 15: Air Quality** (document reference 6.1.15/ PS-075), as well as updated in the above section, baseline concentrations are well below their respective AQOs. The annual mean NO_2 concentration recorded at

passive diffusion tube SH11 in 2022, located 1.5 m from the kerb on the A52 in Donington, was 14.4 µg/m^3, which is 36% of the AQO. Therefore, before any exceedance of the annual mean NO_2 AQO is experienced an increase of 25.6 µg/m^3, or 64% of the AQO, would be required, which is a considerable amount of headroom and unlikely to be achieved by the cumulative traffic flows. In addition, as outlined in the 'Baseline Conditions' section of **Chapter 15: Air Quality** (document reference 6.1.15/ PS-075), DEFRA predicted background annual mean concentrations in the vicinity of the Proposed Development in the earliest anticipated construction year of 2025.

7.75. Given the monitored concentrations and predicted future background concentrations, in line with the EPUK and IAQM impact descriptors, a change in concentration of greater than 10% of the relevant air quality objective (a moderate adverse impact) would constitute a significant impact. This level of change is considered very unlikely in this instance given the predicted cumulative development traffic flows.

7.76. In addition, there are a limited number of highly sensitive receptors, such as residences, situated on the A17¸ Cowbridge Road, Bicker Drove and Vicarage Road construction routes and the majority are set back by at least 5m, including the sensitive receptor locations on the A52.This will aid in dispersion of pollutants and reduce the contribution of the A17 and A52 at the building facades.

7.77. As such, there is not expected to be any change to the outcome of the 'Cumulative and In-combination Effects' section within **Chapter 15: Air Quality** (document reference 6.1.15/ PS-075). In summary, it is not considered likely that there will be **no significant adverse cumulative effects** from construction traffic associated with the Proposed Development and other cumulative development sites considered.

7.78. There is no need for further mitigation and enhancement measures for cumulative Air Quality.

Hydrology Cumulative Note

7.79. Within the Beacon Fen Energy Park PEIR it is noted the Beacon Fen North site is within Flood Zone 3, and the Cable Route Corridor spans across Flood Zone 1 and 3. The design of the Beacon Fen Energy Park will take into account best practice guidance. This includes no built development in hydrologically sensitive areas, maintaining a minimum 10m standoff distance between any built development and watercourses, retaining hydraulic connectivity across the Site and adopting pollution prevention measures as per the PEIR. Mitigation measures will therefore be embedded into the design and will adhere to the implementation of standard best practice, together with bespoke measures that relate to the baseline environment. A Flood Risk Assessment as a standalone report will accompany the Flood Risk ES chapter if a DCO application comes forward for Beacon Fen Energy Park.

7.80. It is noted within the Beacon Fen Energy Park PEIR that there is 'potential' for cumulative hydrological effects between the two schemes during construction, operation and decommissioning as the Proposed Development is within the same surface water catchment and is in close proximity of the Beacon Fen Energy Park. Beacon Fen Energy Park will also be subject to compliance with the relevant national policies and therefore be required to demonstrate that flood risk is not increased, that the surface water drainage regime and surface water quality are not adversely affected, and that groundwater aquifers are not affected. It is expected that the design of Beacon Fen Energy Park will need to comply with the 1 in 1000 year +20% breach flood event design specified by the Environment Agency that Heckington Fen Solar Park has adhered to. It is assumed that if granted Development

Consent, Beacon Fen Energy Park and the Proposed Development will not give rise to any cumulative significant effects within the wider catchment area due to the policy requirement that flood risk will not be increased if granted consent.

Climate Change Cumulative Note

7.81. Within the Beacon Fen Energy Park PEIR, details are provided of the predicted quantum of greenhouse gas emissions relating to the construction, operation and decommissioning phase. The Beacon Fen PEIR states that over the 40 year operational life of the scheme has the potential to generate 21,735.6GWh of renewable electricity. This would save 9,070,400 tCO_2e (after carbon payback) from the equivalent energy sourced from natural gas. .

7.82. The Heckington Fen Solar Park Climate Change chapter (document reference 6.1.13/ APP-066), confirms a moderately, significant beneficial operational effect is predicted for the cumulatively planned contribution of solar projects in the local area to meeting the UK's net-zero targets. It was estimated at Table 13.13 of the Climate Change chapter (document reference 6.1.13/ APP-066) that 2050MW (2.05GW) of solar energy generation could be collectively produced in the local area. **Appendix 2** paragraph 8.18 of this report confirms the 10 NSIP solar projects within Lincolnshire, if granted Development Consent, could generate approximately 5.4GW. Therefore, Beacon Fen Energy Park in combination with Heckington Fen Solar Park and the other planned solar projects in the local area, if granted, will further benefit the UK in meeting its net-zero targets and reducing greenhouse gas emissions.

7.83. In terms of climate change resilience and adaption, this is a project specific consideration and the level of resilience of the developments to the changing climate is unlikely to affect other receptors in a quantifiable outlet.

Glint and Glare Cumulative Note

7.84. The PEIR for Beacon Fen has assessed the possibility of a cumulative effect with the Proposed Development. As the two sites are within 5km of each other it was preliminarily determined that the possible effect of cumulative Glint and Glare needed further investigation.

7.85. Glint from the Proposed Development was predicted at some of the receptors within Beacon Fen's computer model. This model does not account for vegetation which screens the possibility of glint occurring. The design of the Proposed Development and the Beacon Fen site include the introduction of screening around the perimeter of sites. As such there are no residual effects predicted.

7.86. As the Proposed Development will not cause a glint effect, there will be no cumulative effect with the Beacon Fen Energy Park.

7.87. The only receptors that would potentially have visibility to both sites are aviation receptors (i.e., aircraft in skies above the sites). Aviation glint effects were scoped out of the Heckington Fen Solar Park EIA but, for completeness and in response to consultee comments, some level of analysis was carried out anyway. The closest major aviation receptor, RAF Coningsby, was assessed to not receive glint effects on final approach to either Runway 07 or Runway 25.

7.88. In order to receive glint, the sun and the receptor must be in alignment with the panels and glint effects will usually only persist for a short period until either the sun has moved position in the sky, or in the case of a plane, it has flown to a slightly different position in the sky, breaking the alignment. For cumulative effects to occur for a passing aircraft, the alignment

between the sun, panel and aircraft must deliver glint whilst a simultaneous alignment of the sun, panels at the cumulative site and the aircraft also exists. Whilst this is theoretically possible with differing panel angles, in practice the separation between the sites and the similarity between panel inclinations and orientations at those differing sites means that such co-alignment is highly unlikely. Again, since no direct effects were predicted, no significant cumulative effects are anticipated.

7.89. It is also prudent to note that, since submission of the original ES, draft NPS EN-3 guidance has been replaced with the fully adopted version (March 2023). In respect of aviation glint EN-3 states at Paragraph 3.10.150, ***"Whilst there is some evidence that glint and glare from solar farms can be experienced by pilots and air traffic controllers in certain conditions, there is no evidence that glint and glare from solar farms results in significant impairment on aircraft safety. Therefore, unless a significant impairment can be demonstrated, the Secretary of State is unlikely to give any more than limited weight to claims of aviation interference because of glint and glare from solar farms."***

Soils and Agriculture Cumulative Note

7.90. The Proposed Development is a standalone proposal not connected to any other proposed developments, solar or otherwise. As such there are no direct cumulative effects on the use of agricultural land, with any temporary agricultural land losses from other developments.

7.91. Within the Beacon Fen Energy Park PEIR, it states the findings of the soil grading survey work that has been completed on the Energy Park site. To date the soil grading for the haul route/access route and offsite cable route are estimated from post 1988 ALC data.

7.92. The auger soil survey work for the site (512ha) has determined that the site is a mix of Grade 2-3b with 3.1% of the site being non-agricultural. The Energy Park Site is made up of 2.8% Grade 2, 44.6% Grade 3a and 49.5% Grade 3b. The offsite cable route is estimated 16% Grade 1, 73% Grade 2 and 4% Grade 3. The access route is estimated 100% Grade 3.

7.93. The Proposed Development at Heckington Fen will have 20.2ha of agricultural land sealed over or the purpose of fixed equipment such as where the solar panel piles enter the ground and the operation of the Energy Storage System (ESS) as outlined in Chapter 16: **Land Use and Agriculture** (document reference 6.1.17/ APP-069). Of the 20.2ha, 17.4ha is low grade agricultural land (3b). The remaining 3ha has been assumed to be on BMV land as the final design of the panel layout has not been confirmed. However, in reality this is likely to be more of a 50/50 split between BMV and low-grade land, when considered against the ALC Results in Insert 1 within **Chapter 16: Land Use and Agriculture**.

7.94. The remaining land within the Proposed Development's Energy Park Site and Offsite Cable Route which is a mix of BMV and lower grade land, will remain in agricultural activity for the operational lifetime of the Proposed Development. Only the land within the Energy Park area (257ha) has been considered as "lost" for the purpose of the EIA assessment. In reality this agricultural land will not be "lost", as this terminology indicates that no agricultural activity would take place on the land for the operational life of the Proposed Developments. Instead of loss, the granting of the DCO will lead to an alteration in the agricultural practice which will take place on the Energy Park site. The alteration of agricultural activity will be from arable to pastoral (sheep grazing); the Applicant secures sheep grazing through its **outline Landscape Ecological Management Plan** (document reference 7.8) under Requirement 8 of the DCO as well as in the outline **Operational Environmental Management Plan** (document reference ExA.oOEMP- D5.V3) under Requirement 19 of the DCO.

7.95. It is therefore accepted that agricultural land will temporarily change if both the Proposed Development and Beacon Fen Energy Park were granted Development Consent. Beacon Fen have so far identified in their PEIR that 47.4% of the Beacon Fen North site is BMV land (Grade 2 and 3a). This is equivalent to 242.68ha. Therefore, cumulatively the Proposed Development and Beacon Fen Energy Park would lead to a cumulative temporary use of 499.68ha of BMV land used.

7.96. The Beacon Fen PEIR has stated that there will be a 10.6ha loss of BMV land from the location of the BESS and substation and in addition less than 10ha of BMV land lost for creation of access tracks and compounds. As a worst-case scenario, the Applicant has therefore assessed a total loss of 20.6ha of BMV land from the Beacon Fen site. . The Beacon Fen PEIR indicates that grazing is proposed on their Energy Park during the operational phase, but no more detail is provided.

7.97. It is outlined in **Appendix 2,** sub section 'Cumulative Effect of the Proposed Development and other NSIP Solar Projects' of this report that cumulatively the temporary use of BMV land from Lincolnshire, if all 11 NSIP solar schemes were granted Development Consent, the effect would be not significant. The decision to view the loss of land as a temporary one was agreed to by the Secretary of State for the Little Crow Solar NSIP scheme (EN010101). This was further reinforced by the Welsh DNS decision for St Asaph solar scheme (3247619 IR 310-314) and within the Longfield Solar Farm Order 2023 decision (EN010118). Additionally, an alternative agricultural practice (i.e., sheep grazing) will continue at the Proposed Development and at Beacon Fen throughout the operational lifetime.

Socio-Economics

7.98. Within the Beacon Fen Energy Park PEIR, it has been estimated that the scheme will generate 242 net construction jobs. It also states that it will create at least 15 FTE jobs during operation.

7.99. The **ES Technical Note- Updated Information on Cumulative Projects** (document reference ExA.ESTN-Cumulative-D5.V4) considered and scoped in 9 cumulative projects (including Beacon Fen Energy Park) in the updated cumulative assessment. The overall conclusions found there will be major beneficial effects in relation to employment and economic contribution during the construction and decommissioning phases , and moderate beneficial effects to business rates during the operational phase. Accommodation Demand effect during the construction and decommissioning phases is predicted to be minor to moderate adverse but is not significant- this is an absolute worst case scenario, and the realistic outlook is likely to be much more limited in comparison. Therefore, the cumulative effects of the Proposed Development and Beacon Fen Energy Park isolated from the larger cumulative comparison of the 9 other projects, will lead to effects of a lesser extent than what is presented in the Socio-Economic section of the **ES Technical Note- Updated Information on Cumulative Projects** (document reference ExA.ESTN-Cumulative-D5.V4).

8. Summary

8.1. This section provides a summary setting out the matters that have been agreed, any inconsistencies or outstanding matters, and the next steps to be taken to resolve them.

8.2. It has been identified through the initial assessment of other projects with the potential for cumulative effects at **Table 1.1** that one solar NSIP scheme, Beacon Fen Energy Park, is considered further for potential cumulative effects due to the close proximity between the two projects and the shared common feature of the Cable Route Corridor in part. An update to the cumulative assessment undertaken in the Proposed Development's ES was submitted at Deadline 2 and applications on the long list and shortlist or new TCPA/NSIP submissions that have occurred since the finalisation of the assessment were updated and included. This was presented in **ES Technical Note- Updated Information on Cumulative Projects** (document reference ExA.ESTN-Cumulative-D5.V4) and is subsequently further updated for Deadline 3 as a Revision 2, Deadline 4 as a Revision 3 and Deadline 5 as a Revision 4.

8.3. The Beacon Fen Energy Park scheme Scoping Request was submitted on the 19th April 2023, this was after the Heckington Fen Solar Park DCO application submission of the 15th February 2023. The Beacon Fen Energy Park PEIR was published on the 22nd January 2024 and so has been considered within this report which is being submitted at Deadline 5 of the Heckington Fen Examination. The two projects at their closest point from main solar site areas are 3.3km apart. However, the cable route corridors have the potential to overlap. Section 7 of this report undertakes a cumulative assessment of the two projects and there are no expected significant cumulative effects that will occur.

8.4. As the Beacon Fen Energy Park and Heckington Fen Solar Park projects are on greatly differing timescales in the DCO application process there has been limited amount of collaboration on projects. The Applicant will continue dialogue and discussion of any potential interaction in the shared cable route corridor with Beacon Fen Energy Park Ltd and update accordingly in a further revision of this report during Examination. The applicants for Beacon Fen and Heckington Fen have agreed to Protective Provisions in their respective DCOs for the other party, and will work on a Co-operation Agreement as the Beacon Fen's application develops.

Appendix 1 – Initial assessment of other projects with potential cumulative effects, including details of consenting, construction and operation timetables

Table 1.2 – Initial assessment of other projects with potential cumulative effects, including details of consenting, construction and operation timetables

Project Name and Reference	Project Details	LPA	Application Submission	Start of Examination (actual/predicted)	Estimated deadline for Decision	Predicted start of Construction	Predicted end of Construction	Predicted Operation Date
Heckington Fen Solar Park (ENO10123)	400MW of installed solar capacity 250MW of energy storage capacity	North Kesteven District Council Boston Borough Council	13th March 2023	19th September 2023	19th September 2024	2025	2027	2027
Boston Alternative Energy Facility (ENO10095)	102MWe gross (80MWe exportable) energy from waste facility with light weight aggregates facility, wharf, waste reception and storage facility and grid connection	Boston Borough Council	23rd March 2021	20th April 2021	Granted Development Consent 6th July 2023	2022 Submitted documentation stated construction start of 2022. No new documentation has been submitted to revise this construction start date.	2026	2026

Project Name and Reference	Project Details	LPA	Application Submission	Start of Examination (actual/predicted)	Estimated deadline for Decision	Predicted start of Construction	Predicted end of Construction	Predicted Operation Date
Mallard Pass Solar Farm (EN010127)	350MW of installed solar capacity	Rutland County Council/ South Kesteven District Council	24th November 2022	16th May 2023. Examination closed November 2023	16th February2024	2026	2028	2028
Cottam Solar Project (EN010133)	600MW of installed solar capacity. Two options have been assessed for battery storage capacity in the Environmental Statement: Option A: 1357MWh Option B: 2773MWh	West Lindsey District Council/ Bassetlaw District Council	12th January 2023	5th September 2023. Expected to close March 2024	5th September 2024	2024	2026	2026
Gate Burton Energy Park	531MW of installed solar capacity.	Bassetlaw District Council and West	27th January 2023	4th July 2023	4th July 2024 – Examination	2025	2028	2028

Project Name and Reference	Project Details	LPA	Application Submission	Start of Examination (actual/predicted)	Estimated deadline for Decision	Predicted start of Construction	Predicted end of Construction	Predicted Operation Date
(EN010131)	500MWh of battery storage capacity	Lindsey District Council			closed January 2024			
West Burton Solar Project (EN010132)	480MW of installed solar capacity. 159MWh of battery storage capacity	West Lindsey District Council/ Bassetlaw District Council	21st March 2023	8th November 2023 expected to close May 2024	8th November 2024	2024	2026	2026
Beacon Fen Energy Park (EN010152)	400MW of installed solar capacity 600MW Battery storage capacity	North Kesteven District Council/ Boston Borough Council	Summer 2024 (proposed)	Q4 2024	Q4 2025	2026/27	2028/29	2028/29
Outer Dowsing Offshore Wind (Generating Station) (EN010130)	1.5 GW wind farm	Windfarm 54km off coast of Lincolnshire. Cable Route corridor to Weston	Q1 2024 (proposed)	Q3 2024	Q3 2025	2026	2030	2030

Project Name and Reference	Project Details	LPA	Application Submission	Start of Examination (actual/predicted)	Estimated deadline for Decision	Predicted start of Construction	Predicted end of Construction	Predicted Operation Date
		Marsh (north of Spalding).						
Temple Oaks Renewable Energy Park (EN010126)	240MW installed solar capacity 480MWh of battery storage capacity	South Kesteven District Council	Advised by Temple Oaks - Applicant 2024 (proposed)	2024	2025	Estimated 2026	Estimated 2028 (Scoping Report estimated 24-month construction)	Estimated 2028
Springwell Solar Farm (EN010149)	Approximately 800MW installed solar capacity Battery storage capacity unknown it is not stated with the PEIR	North Kesteven District Council	Autumn 2024 (proposed)	Winter 2024/Spring 2025 – Applicant Formal Consultation Leaflet	Early 2026	2026	2030	2030
Fosse Green (EN010154)	350MW installed solar capacity 480MWh of battery storage capacity	North Kesteven District Council	Autumn 2024 (proposed) – Applicant non statutory	Q2 2025	Q2 2026	2031	2033	2033

Project Name and Reference	Project Details	LPA	Application Submission	Start of Examination (actual/predicted)	Estimated deadline for Decision	Predicted start of Construction	Predicted end of Construction	Predicted Operation Date
			consultation Leaflet					
Tillbridge Solar Project (EN10142)	500MW connection agreement Battery storage to be decided	West Lindsey District Council/ Bassetlaw District Council	Q1 2024 (proposed)	Q3 2024	Q3 2025	Q3 2025[11]	Q3 2027	2027
One Earth Solar Farm (EN010159)	740MW connection agreement Unknown battery storage capacity	Bassetlaw District Council and Newark and Sherwood District Council	Spring[12] 2025 (proposed)	Summer 2025	Spring 2026	Estimated 2026	Estimated 2027	Estimated 2027[13]

[11] PEIR for Tillbridge Solar Farm states anticipated construction start date in Q3 2025 and will last around 24 months.

[12] One Earth Solar Farm Consultation Booklet September 2023

[13] Information taken for the connection date is from National Grid's Transmission Entry Capacity Register.

Project Name and Reference	Project Details	LPA	Application Submission	Start of Examination (actual/predicted)	Estimated deadline for Decision	Predicted start of Construction	Predicted end of Construction	Predicted Operation Date
Lincolnshire Reservoir (WA010003)	5km^2 water surface area sized reservoir holding 55 million cubic metres of water.	North Kesteven District Council	Q3 2025	2026	2027	2029	2031	2039-2041
Vicarage Drove (B/21/0443)	49.9MW installed solar capacity Battery Storage Capacity included in description of development, but no capacity offered.	Boston Borough Council	5th October 2021 (LPA)	N/A	Granted with conditions 17th February 2022 (LPA)	Anticipated the project will be built before construction of the Proposed Development	N/A	N/A
Land West of Cowbridge Road (B/22/0356 and H04-0849-22)	49.9MW installed solar capacity Battery Storage Capacity included in description of development, but no capacity offered. Detail only offers 38No. Battery Storage Containers	Boston Borough Council and South Holland District Council	25th August 2022 (LPA)	N/A	Granted with conditions 21st July 2023 (LPA)	Anticipated the project will be built before construction of the Proposed Development	N/A	N/A

Appendix 2 – Cumulative Land and Agricultural Land Note

UK Land Use from Ground Mounted Solar Panels

Introduction

8.5. In the UK there is around 14GW of solar capacity split between large scale projects to smaller scale rooftop solar[14]. According to analysis by the trade body Solar Energy UK, using Solar Media data[15], 9.7GW of this capacity of the currently 14GW installed capacity comes from ground-mounted solar panels.

Literature Discussion

8.6. Literature shows a small margin of confliction in the amount of land required to produce 1 megawatt (MW) of power as part of a ground mounted solar farm. The literature is discussed below.

- 'Blocking new solar farms could cost bill payers around £5bn a year' (September 2023) Energy and Climate Intelligence Unit states ***"between just over 40,000ha and 70,000ha of land would be needed for meet the solar target*** (based on estimates that 1.8ha of land is needed per 1 MW of solar capacity (The Natural Capital Value of Solar' (2019) Solar Trade Association)), ***or between around 0.5 and 0.7% of English farmland. By contrast, moves to further restrict solar development on grades 1 to 3a farmland effectively prevent development on nearly 4.75 million hectares of farmland. Including grade 3b land in this, as some have previously suggested, would render a further 3.75 million hectares of relatively low grade farmland out of bounds for solar energy generation."***

- National Policy Statement for Renewable Energy EN-3 (March 2023) Department of Energy Security and Net Zero (DESNZ) states at paragraph 3.10.2 that the ***"government expects a five-fold increase in solar deployment by 2035 (up to 70GW)".*** At paragraph 3.10.8 it states ***" a solar farm requires between 2 to 4 acres for each MW of output. A typical 50MW solar farm will consist of around 100,000 to 150,000 panels and cover between 125 to 200 acres. However, this will vary significantly depending on the site, with some being larger and some being smaller. This is also expected to change over time as the technology continues to evolve to become more efficient."***

    - Pegasus Group have calculated from the statement provided from the National Policy Statement for Renewable Energy EN-3 (March 2023) that, if an average of 3 acres is used per 1MW to reach the government's target of increasing solar capacity fivefold, ground-mounted solar could occupy 84,984 hectares of land in the UK. This is equivalent of 0.4% of total land use in the UK.

[14] Department for Energy Security and Net Zero (DESNZ) (April 2022) British Energy Security Strategy.

[15] Solar Media Market Research (July 2023) UK Ground-Mount Solar Completed Assets Report

- 'Everything under the Sun – The Facts about Solar Energy' (March 2022) Solar Energy UK Briefing states that ***"in the UK, new solar farms occupy roughly four acres of land per MW of installed capacity. All solar farms in the UK currently account for 0.08% of total land use."***

- 'Solar Farms and the British Landscape' (June 2021) National Farmers Union state, ***"solar farms actually have a relatively modest 'land take' and environmental impact compared with wind power, bioenergy or even other non-food land use such as golf courses, horse paddocks or pharmaceutical crops."***

- 'The Natural Capital Value of Solar' (2019) Solar Trade Association states that ***"1MW of PV generation capacity occupies a land area of between 4-5 acres. All large-scale ground mounted solar parks across the UK therefore collectively occupy an estimated 13,749 hectares. This is a marginal share of the total UK land area of 24.3million hectares."***

    - Pegasus Group have calculated from the statement provided from the Natural Capital Value of Solar Report, that ground mounted solar panels currently cover approximately 0.06% of total land use in the UK (based on 2019 data and estimates of 7.55GW of ground mounted solar panels present).

Summary

8.7. The literature discussion determines collectively that between 2-5 acres of land is required for a 1MW output. Subsequently, the UK land take from ground mounted solar panels by 2035, when an expected 70GW is installed, will result in approximately 0.4-0.8% of all UK land.

Lincolnshire Land Use from NSIP Solar Projects Estimation

BMV Land in Lincolnshire

8.8. Lincolnshire covers an approximate area of 591,800 hectares (ha). Of this area, agricultural land (based on 1977 MAFF Provisional Agricultural Land Classification Map) takes up 566,200 ha (inclusive of Grade 1-5 ALC land). The National Planning Policy Framework (NPPF) (2023) places Grades 1, 2 and 3a within the definition of the 'best and most versatile agricultural land' (BMV). Across Lincolnshire there is an estimated 402,900 ha (71.2%) of BMV land. This information can be found in **Chapter 16- Land Use and Agriculture** (document reference 6.1.16/ APP-069) of the Heckington Fen Solar Park ES.

Heckington Fen Solar Park and the Availability of BMV Land in Lincolnshire

8.9. The Energy Park site area for the Heckington Fen Solar Park is 524 ha. An area of 257 ha (49%) of the Energy Park is within the BMV category (see Table 16.2 of **Chapter 16- Land Use and Agriculture** (document reference 6.1.16/ REP2-028). This equates to 0.06% of the estimated 402,900 ha of BMV land in Lincolnshire. Of that 257 ha of BMV land in the Energy Park area, only c.3ha of BMV land will be sealed due to the fixed equipment and track during the operational phase and therefore continued agricultural use of the Energy Park remains available. The permanent loss of 3ha of BMV land as a result of the Proposed Development represents less than 0.001% of Lincolnshire's BMV land. The land being used as a result of the Proposed Development is well below the 20 ha threshold contained within Schedule 4 of the Town and Country Planning (Development Management Procedure (England) Order 2015

above which local authorities must consult Natural England before the grant of planning permission (the same threshold is also used by Natural England when informing their consultation on projects).

8.10. The amount of BMV land permanently lost through Heckington Fen Solar Park is determined as not significant when considered at a Lincolnshire level.

Cumulative Effect of the Proposed Development and other NSIP Solar Projects in Lincolnshire

8.11. The purpose of this report is to analyse the interrelationship with other Nationally Significant Infrastructure Projects (NSIPs), in particular solar NSIPs within the region. Below **Table A** sets out the ten other solar NSIP sites and the Proposed Development listed within **Table 1.1** of the **Interrelationship with other Nationally Significant Infrastructure Projects** (document reference ExA. IRReport-D1.V1) included as part of the initial cumulative assessment. Information was gathered from publicly available documents for each DCO application and compiled into **Table A** to show the likely impact on BMV land for each project.

8.12. The ten other NSIP solar projects are at varying levels of completion (i.e., some have a Scoping Report submitted, some are at Statutory Consultation stage, and some are at various stages within the Examination process). Therefore, some projects have limited information available if they are in the pre-application stage.

8.13. Where an ALC detailed survey has not been conducted and subgrade information cannot be provided (i.e., Grade 3a/3b), the Applicant has assumed the land falls into subgrade 3a (i.e., BMV). In some instances, there is no information on the permanent loss of BMV land and therefore this is stated as 'unknown'. However, it is likely a minimal amount of land (less than 1%) will be lost, ranging to potentially no permanent land loss as has been shown consistently across ground mounted solar projects across the UK through the TCPA process. At Deadline 3, column 5 of **Table A** of this Appendix was updated for sites where no information of permanent loss of BMV land within the Solar PV panel area has been provided, to show a worst case of 1% permanent loss. This is consistent with the assessment made in the **ES Technical Note- Updated Information on Cumulative Projects** (document reference ExA.ESTN-Cumulative-D2.V1/ REP2-050). As the Temple Oaks public documentation states that there is no BMV land within its Energy Park site, this 1% loss has not been applied to the Temple Oaks site. It should be noted that the proposals for DCO applications are subject to change, particularly those in the early stages, and this will likely have an effect on figures estimated below. Information provided in this report is correct as of February 2024 and was reviewed and updated, if needed, at Deadline 5.

8.14. **Table A** indicates the total Order Limit areas and potential area of the main sites to be used (i.e., area with solar PV panels) for each project. Generally, Order Limit areas given for each project include cable route corridors. The impact on the land used for the cable route is considered temporary and will not be lost. Existing land uses such as arable agriculture is expected to continue on each project once the cable has been laid as seen with schemes local to Heckington Fen including the Triton Knoll and Viking Link projects.

Table A- Cumulative Lincolnshire Land Use from NSIP Solar Projects

Solar NSIP Projects within Lincolnshire	Area of entire Order Limits (ha)	Area of Solar PV panels (excluding cable route corridor) (ha)	Temporary change of use of BMV land within the Solar PV panel area (ha and %)	Permanent loss of BMV land within the Solar PV panel area (ha and %)
Heckington Fen [16] Solar Park	644.79ha	524ha	257ha (49%)	3ha (0.6%)
Mallard Pass Solar[17] Farm (EN010127) This application is split over Lincolnshire and Rutland County Council's areas	852ha (327.4ha of the order limits is within Lincolnshire)	531 ha	216ha (41%) 101ha (12%) within Lincolnshire County – this figure is used within BMV Lincolnshire land calculations in Appendix 2 of this document.	4.2ha (0.8%)[18]

[16] Information taken from 6.1.16 Environmental Statement - Chapter 16 - Land Use and Agriculture (APP/ 069) of Heckington Fen Solar Park DCO application.

[17] Information taken from 6.1 Environmental Statement Volume 1 – Chapter 12: Land Use and Soils (APP/ 042) of Mallard Pass Solar Fam DCO application.

[18] Information taken from ES Chapter 12, Table 12.1 (APP-042) of Mallard Pass Solar Farm DCO application.

Solar NSIP Projects within Lincolnshire	Area of entire Order Limits (ha)	Area of Solar PV panels (excluding cable route corridor) (ha)	Temporary change of use of BMV land within the Solar PV panel area (ha and %)	Permanent loss of BMV land within the Solar PV panel area (ha and %)
Cottam Solar [19] Project (EN010133)	1451ha	1179.7ha (across Cottam sites 1,2 3a and 3b)	48.3ha (4.1%)	4ha (0.3%)[20]
Gate Burton Energy[21] Park (EN010131)	824ha	652ha	73.6 ha (11%)	2ha (0.3%)
West Burton Solar Project[22] (EN010132)	886ha	757.8ha (across West Burton 1, 2 and 3 sites)	199.5ha (26.4%)	2ha (0.3%)
Beacon Fen Energy Park[23] (EN010152)	1540ha[24]	512[25]ha	242.7ha (47.4%)	20.6ha (8.4%)

[19] Information taken from 6.2.9 ES Chapter Soils and Agriculture (APP/ 054) of Cottam Solar Project Fam DCO application.

[20]. REP_010 in Table 19.2 and paragraph 19.7.7 states that 4.1% of the Site is BMV land; 47.9ha of land will be used for the substation, BESS and access tracks which will not be used for the continued agricultural use during the lifetime of the Scheme. Of this 4ha is BMV which will be used for access tracks and will be permanently lost for the operational life

[21] Information taken from 3.1 Environmental Statement Volume 1 Chapter 12: Socio Economics and Land Use (APP/ 021) of Gate Burton Energy Park DCO application.7

[22] Information taken from 6.2.9 Environmental Statement Chapter 19: Soils and Agriculture (APP/057) of West Burton Solar Project DCO application.

[23] Information taken from PEIR of Beacon Fen Energy Park DCO application. Detailed ALC survey has been undertaken of solar area with provisional data presented for the Offsite Cable Route and Access Route.

[24] The PEIR published in January 2024 states that the order limits area is 1540ha. This is made up from 512ha (solar farm), 903ha (offsite cable route) and 125.4ha (access route/haul road).

[25] This figure is the area of the solar farm – it excludes the new access track area (125.4ha). This exclusion has been made due to the fact that the PEIR states this access track will be temporary for construction period only. This information is taken from the Beacon Fen PEIR Published in January 2024.

Solar NSIP Projects within Lincolnshire	Area of entire Order Limits (ha)	Area of Solar PV panels (excluding cable route corridor) (ha)	Temporary change of use of BMV land within the Solar PV panel area (ha and %)	Permanent loss of BMV land within the Solar PV panel area (ha and %)
Temple Oaks Renewable Energy Park[26] (EN010126)	350ha	280ha	Oha (0%)[27]	Oha (0%)
Springwell Solar [28] Farm (EN010149)	1458ha	1458ha[29]	782ha (53.6%)[30]	7.82ha (0.5%)
Fosse Green Energy[31] (EN010154)	Entire Order Limits not known as cable route corridor to be determined.	1003ha	Estimated 1003ha (100%)[32]	10ha (1%)

[26] Information taken from Scoping Report of Temple Oaks Renewable Energy Park DCO application.

[27] Total area of Order Limits identified as Grade 3b from Detailed Site Survey (paragraph 70, page 11 of Scoping Report)

[28] Information taken from PEIR of Springwell Solar Farm DCO application, published January 2024.

[29] PEIR notes the 1458ha extends across the three parcels (Springwell West, Springwell Central and Springwell East). The cable route corridor does not appear to be included at this stage. The PEIR states that the location of the National Grid substation is to be decided by National Grid and is being progressed by National Grid.

[30] Detailed ALC survey has been undertaken and presented in the PEIR. Data shows sites are a mix of Grade 1- Grade 4, with 53.6% (782ha) being BMV classifications .

[31] Information taken from Scoping Report of Fosse Green Energy DCO application.

[32] No detailed ALC survey provided in the Scoping Report. Based on National level Provisional ALC data it is a mixture of Grades 2 and 3 land. For the purpose, of this it is assumed the Grade 3 area is subgrade 3a.

Solar NSIP Projects within Lincolnshire	Area of entire Order Limits (ha)	Area of Solar PV panels (excluding cable route corridor) (ha)	Temporary change of use of BMV land within the Solar PV panel area (ha and %)	Permanent loss of BMV land within the Solar PV panel area (ha and %)
Tillbridge Solar Project[33] (EN10142)	1400 ha	900 ha	68ha (7.5 %)	11ha (1.2%)
One Earth Solar Farm (EN010159) This application is split over Lincolnshire and Nottinghamshire County Council's areas	1500 ha[34]	1500ha across Lincolnshire and Nottinghamshire County Council areas 250ha [35] within Lincolnshire County	1455ha (97%) [36] across Lincolnshire and Nottinghamshire County Council areas 250ha (17%) within Lincolnshire County – this figure is used within BMV Lincolnshire land calculations in	2.5ha (0.2%)

[33]. Information taken from two sources: Chapter 14 Socio-Economics and Land Use of the Preliminary Environmental Information Report (PEIR) on the Tillbridge Solar Project Applicant website Interim detailed ALC survey report has been undertaken for the areas of predicted BMV land take. REP5-042 from the Gate Burton submitted documents to the ExA: Interrelationship Report states that total area of the Tillbridge is site 1,400ha with 900ha developable area and 500ha for ecology, landscape & heritage offsets. This Gate Burton Interrelationship Report has been drafted in collaboration with the applicant for Tillbridge Solar.

[34] Information taken from Scoping Report of One Earth Solar Farm DCO application.

[35] Information taken from Scoping Report of One Earth Solar Farm DCO application.

[36] Based on National level Provisional ALC data it is estimated 1455ha (97%) is Grade 3 land, and 45ha (3%) Grade 4 land. For the purpose, of this assessment, it is assumed the Grade 3 area is subgrade 3a.

Solar NSIP Projects within Lincolnshire	Area of entire Order Limits (ha)	Area of Solar PV panels (excluding cable route corridor) (ha)	Temporary change of use of BMV land within the Solar PV panel area (ha and %)	Permanent loss of BMV land within the Solar PV panel area (ha and %)
			Appendix 2 of this document.	

8.15. From the information provided in **Table A**, the ten other solar NSIP projects and Heckington Fen Solar Park combined main site areas equates to utilise approximately 9,743ha of land within Lincolnshire. Of the 9,743ha of cumulative land for the NSIP sites solar PV panelled areas, approximately 2597ha has to date been identified as a worst case[37] to be BMV land in Lincolnshire. It is estimated that approximately 50.6ha of this cumulative BMV land will be permanently lost in Lincolnshire.

8.16. To equivalate, the worst-case cumulative temporary use of BMV land at a regional level in Lincolnshire, if all eleven NSIP solar sites were granted Development Consent, would be approximately 0.64% [38] of the total BMV land in Lincolnshire. The permanent loss of cumulative BMV land would be approximately 0.013%[39] of the total BMV land in Lincolnshire.

8.17. At a national level, the total cumulative land use for the eleven NSIP sites solar PV panelled areas (9,743ha) in comparison to the UK total land area (24.3million ha) is 0.04%[40].

8.18. A summary **Table B** is presented below of the key cumulative land take statistics.

Table B: Conclusions on cumulative effects on BMV land in Lincolnshire

	Change of Use of BMV Land		Permanent Loss of BMV Land	
	Solar PV panel area on BMV land (ha)	Proportion of BMV land in Lincolnshire (%)	Solar PV panel area on BMV land(ha)	Proportion of BMV land in Lincolnshire (%)
Heckington Fen Solar Park	257ha	0.06%	3ha	0.001%
All NSIP Solar project applications (11) identified in Lincolnshire	2597ha	0.64%	53.6ha	0.013%

8.19. It has therefore been determined that the BMV land use take of Heckington Fen Solar Park individually is not significant, and when considered on a cumulative level with the other ten NSIP solar schemes it remains as not significant when compared to the total proportion of

[37] Worst-case as no detailed site date available and so utilising the MAFF BMV land data or DEFRA 1988 data. It has also been assumed where land graded as Grade 3, this is Grade 3a (BMV) not Grade 3b (low grade).

[38] Calculation is (2597/402,900 x 100)

[39] Calculation is (53.6/402,900x100)

[40] Calculation is (9,743/24,300,000 x100)

BMV land available in Lincolnshire. The land use for the Energy Park at Heckington Fen Solar Park will continue to be used for agricultural production (sheep grazing) when operational, and once decommissioned the land will be restored.

8.20. Additionally, for completeness, the Lincolnshire Reservoir has been estimated to cover an area of 972ha[41] of land take. It has been estimated that this area includes 18ha of Grade 2 land and 954ha of Grade 3 land[42]. If the Lincolnshire Reservoir is considered in combination with the eleven NSIP solar schemes within Lincolnshire, this would cover a land use change of 10,715ha (1.8%[43]) within Lincolnshire. As Lincolnshire Reservoir has the potential to be 100% BMV land based on Provisional ALC mapping, this equivalates to cumulatively 3,570ha (0.88)%[44] of potential BMV land use in Lincolnshire, of which 1,025ha (0.25%[45]) would be a permanent loss of BMV land in Lincolnshire.

8.21. It should be noted that due to the early pre-application stage for some of the NSIP projects listed in this **Appendix 2,** there is no Detailed ALC survey information available as of yet for some of these projects in this assessment. Therefore, for, Fosse Green Energy, One Earth Solar Farm and Lincolnshire Reservoir the Provisional ALC mapping has been relied upon to estimate grading of the land. To assess a worst-case scenario, where Grade 3 land has been listed this has been presumed to be subgrade 3a, i.e., BMV land. The three NSIP sites with Provisional ALC information used collectively attribute to 2,225ha of potential BMV land used in Lincolnshire. The eleven NSIP solar sites and Lincolnshire Reservoir collectively, if granted Development Consent, could create 3,570ha of potential BMV land being used in Lincolnshire. Therefore, the three NSIP sites with BMV calculations relied upon using Provisional ALC data (e.g., 2,225ha), attributes to 62.3%[46] of the 3,570ha of total potential BMV land use from the eleven solar NSIP schemes and Lincolnshire Reservoir in Lincolnshire. Therefore, there is a level of uncertainty in the quantity and percentages of potential BMV land use in Lincolnshire.

8.22. The overall calculation of 0.64% of total BMV land temporarily changed from the eleven NSIP solar schemes within Lincolnshire, and the 0.88% of total BMV land used from the eleven NSIP solar schemes and Lincolnshire Reservoir, shows a worst-case scenario, and that the actual quantity of BMV permanently lost from these developments could be a lot less.

Conclusion

8.23. In conclusion, this cumulative agricultural note identifies on a national level it is estimated between 0.4-0.8% of all UK land would be needed to be taken to accommodate the target of 70GW installed solar capacity by 2035. The eleven NSIP solar sites assessed in this note within Lincolnshire, if all were granted Development Consent, would cumulatively take up approximately 0.03% of the UK land area and provide approximately 5.4GW of power.

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[41] Pegasus Group estimation using ArcGIS Pro to measure the pink defined area of the Lincolnshire Reservoir from the 'Proposed Site Area Map (October 2022)' of Lincolnshire Reservoir project website - https://www.lincsreservoir.co.uk/assets/images/downloads/Lincolnshire-reservoir-proposed-site-detailed-map-Oct-2022.pdf

[42] Based on National level Provisional ALC data. For the purpose of this assessment, it is assumed the Grade 3 area is subgrade 3a.

[43] Calculation is (10,715/591,800 x100)

[44] Calculation is (2597+972/402,900 x100)

[45] Calculation is (972+53.6/ 402,900 X100)

[46] Calculation is (2,225/3,570 X100)

8.24. Within Lincolnshire, Heckington Fen Solar Park would temporarily change the use of 257ha of BMV land from the county with the implementation of the Energy Park. This equivalates to approximately 0.06% of Lincolnshire's BMV total land available temporarily used, and therefore is not significant. If Heckington Fen Solar Park is considered cumulatively with the other ten NSIP solar projects in Lincolnshire, this equivalates to potentially 0.64%[47] of Lincolnshire BMV total land being used, and therefore this is not significant.

[47] Calculation is (3,025/402,900x100)

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