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## CONTENTS

19.0	CUMULATIVE AND COMBINED EFFECTS.....	1
19.1	Introduction.....	1
19.2	Legislation, Planning Policy and Guidance .....	1
19.3	Assessment Methodology.....	3
19.4	Cumulative Effects Assessment .....	10
19.5	Cumulative Effects Information Gathering and Assessment (Stages 3 and 4) 19	
19.6	Combined Effects .....	19
19.7	Limitations or Difficulties .....	20
19.8	References .....	20

## TABLES

Table 19.1:	Consultation Summary .....	5
Table 19.2:	Updated short list of projects within the 15km Zone of Influence identified at Stage 2 of the cumulative effects assessment .....	11
Table 19.3:	Approach to Assessment of Combined Effects .....	20

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## 19.0 CUMULATIVE AND COMBINED EFFECTS

### 19.1 Introduction

19.1.1 This chapter of the Preliminary Environmental Information (PEI) Report provides an assessment of the potential for cumulative and combined effects to occur as a result of the Proposed Development. Cumulative and combined effects are defined as follows:

- **cumulative effects:** these occur when the environmental impacts and effects of the Proposed Development interact with those associated with other planned projects and developments located within a realistic geographical scope where environmental impacts could act together to result a greater significance of effect on environmental resources and/or receptors; and
- **combined effects:** these are effects resulting from a single development i.e. on the Proposed Development on any one receptor that may collectively cause and effect /effects of greater significance, on environmental resources and/or receptors.

19.1.2 The Environmental Statement (ES) that will accompany the application for development consent will include an assessment of potential cumulative and combined effects taking into account applicable legislation and guidance (as detailed in Section 19.2) and using the methodology as detailed in Section 19.3.

19.1.3 This chapter also provides details of other proposed schemes in the vicinity of the Proposed Development that may be of relevance to the cumulative assessment, using information that is in the public domain. This includes information on the Zero Carbon Humber pipeline proposals into which the Proposed Development is sited to connect, as well as other Nationally Significant Infrastructure Projects (NSIP) proposed schemes that have planning applications registered with the local planning authorities and/or already consented developments, that have not yet been constructed or are operational.

19.1.4 The cumulative assessment to be included in the ES will not consider developments that are already constructed and operating, as such existing operational facilities are accounted for in the baseline conditions established for the main assessments reported within **Chapters 8 to 18** of this PEI Report.

19.1.5 This chapter is supported by **Figure 19.1** (PEI Report Volume III) which illustrates the Proposed Development Site location in relation to other developments that may be of relevance to the cumulative assessment.

### 19.2 Legislation, Planning Policy and Guidance

19.2.1 Due to the potential for cumulative effects to occur as a result of the construction, operation and maintenance of the Proposed Development, a cumulative assessment is being undertaken as part of the Environmental Impact Assessment (EIA) in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (EIA Regulations) (HMSO, 2017) and the assessment requirements of the National Policy Statement (NPS) for Energy (EN-1) (DECC, 2011).

19.2.2 The requirement for cumulative and combined impact assessments is stated in the relevant European Directive and domestic legislation, as detailed below:

- European Directive 2014/52/EU (EEA, 2014) on the assessments of effects of certain public and private projects on the environment requires an assessment of *'the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium term and long-term, permanent and temporary, positive and negative effects of the project'*;
- Schedule 4 Part 5 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 ('the EIA Regulations') (HMSO, 2017) requires: *'A description of the likely significant effects of the development on the environment resulting from, inter alia [...] (e) the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources'*. The EIA Regulations state that this description of likely significant effects *'should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development'*;
- Paragraph 4.1.3 of the Overarching National Policy Statement (NPS) for Energy (EN-1) (DECC, 2011) states that:  
*'In considering any proposed development, and in particular when weighing its adverse impacts against its benefits, the Infrastructure Planning Commission [now the Planning Inspectorate] should take into account:*
  - *its potential benefits including its contribution to meeting the need for energy infrastructure, job creation and any long-term or wider benefits; and*
  - *its potential adverse impacts, including any long-term and cumulative adverse impacts, as well as any measures to avoid, reduce or compensate for any adverse impacts'*.
- Paragraph 4.2.5 of NPS EN-1 goes on to state that when considering cumulative effects, *'the Environmental Statement (ES) should provide information on how the effects of the applicant's proposal would combine and interact with the effects of other development (including projects for which consent has been sought or granted, as well as those already in existence). The IPC may also have other evidence before it, for example from appraisals of sustainability of relevant NPSs or development plans, on such effects and potential interactions. [...]'*; and
- Paragraph 4.2.6 of NPS EN-1 states that consideration should be given to *'how the accumulation of, and interrelationship between, effects might affect the environment, economy or community as a whole, even though they may be acceptable when considered on an individual basis with mitigation measures in place.'*

## 19.3 Assessment Methodology

### Impact Assessment and Significance Criteria

- 19.3.1 There is no standard prescriptive method for assessing cumulative and combined effects. A combination of professional judgement and established guidance has been used to confirm the scope of the cumulative effects assessment.
- 19.3.2 The cumulative effects assessment has been primarily based upon guidance contained within the Planning Inspectorate's (PINS) 'Cumulative Effects Assessment – Advice note seventeen: Cumulative effects assessment relevant to nationally significant infrastructure projects' (PINS, 2019a), which provides advice on the identification and assessment of other planned developments.
- 19.3.3 With regard to cumulative effects, the ability to quantify the extent to which the environmental effects of other schemes can interact with those associated with the Proposed Development depends upon on the level of information available regarding such other schemes. Where environmental assessment information regarding other schemes is not available or is uncertain, the cumulative assessment will be necessarily qualitative and assessed using professional opinion. However, matrices and modelling will be used, where appropriate and where sufficient information is available.
- 19.3.4 When considering cumulative and combined effects, the mitigation measures set out in **Chapters 8 to 18** (which will be confirmed or otherwise within the ES) will be taken into account (i.e. only residual (after mitigation) effects of the Proposed Development will be considered within the assessment).
- 19.3.5 Cumulative and combined effects will be assessed to be neutral, minor, moderate or major. Moderate or major effects are considered to be significant, using the methodologies outlined in each technical chapter (refer to **Chapters 8 to 18** of this PEI Report).

### Cumulative Effects

- 19.3.6 Cumulative effects are those that accrue over time and space caused by the interaction of impacts associated with a number of developments. PINS Advice Note 17 'Cumulative effects assessment relevant to nationally significant infrastructure projects' (PINS, 2019a) sets out a four-stage approach to the assessment of cumulative effects:
- Stage 1: identify the zone of influence and establish a long list of 'other existing development and/or approved development';
  - Stage 2: identify a shortlist of 'other existing development and/or approved development' for cumulative assessment;
  - Stage 3: information gathering; and
  - Stage 4: assessment.

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- 19.3.7 This approach is being followed when undertaking the cumulative effects assessment, noting that this chapter covers Stages 1 to 3, with Stage 4 to be reported within the ES.
- 19.3.8 The Zone of Influence (Zol) is discussed in the study area section herein. A long list of schemes in the vicinity of the Proposed Development was identified prior to the submission of the EIA Scoping Report, whilst an initial short list of schemes considered to be of relevance to the cumulative assessment was provided in the Scoping Report (see **Appendix 1A**, PEI Report Volume II). Both the long and short lists have subsequently been reviewed herein and the current short list of other schemes considered to be of relevance to the cumulative assessment (as of November 2020) is presented in Section 19.4 of this chapter.
- 19.3.9 In order to assess the potential for cumulative effects to arise in relation to these schemes, there is a need to understand their potential for generating potential environmental effects. Where an application for consent has been made, information presented within the supporting documents including relevant environmental reports has been obtained and initially reviewed. For schemes that are known to be proposed (either via EIA screening or scoping opinion requests submitted to the local authority/Planning Inspectorate or following presentation of information in the public domain), but where an ES or other environmental report has not yet been prepared or submitted, any readily available information has been obtained and initially reviewed. This includes communication with local authorities, public consultation material and material available via the internet. Any further information that becomes available following publication of this PEI Report will be taken into account during preparation of the ES.
- 19.3.10 Following information gathering from available sources, the effects of the Proposed Development will be considered in conjunction with the potential effects from other schemes or activities that are both reasonably foreseeable in terms of delivery (e.g. the applicable scheme has consent or is in the planning/ consenting process) and are geographically located in a position where environmental impacts are reasonably likely to act together to create an effect that is more (or less) significant overall than the effect of the individual developments alone.
- 19.3.11 Operational impacts are generally long-term, and whilst construction impacts are often short-term and temporary, they can potentially be of a large magnitude. Consequently, cumulative effects that could be associated with construction at one site and operation at another are considered, the difference in duration and reversibility will be reported within the ES.
- 19.3.12 In assessing cumulative effects, it is appropriate to also acknowledge the relative contributions that different schemes make to a cumulative effect, and carefully consider whether a cumulative effect could occur, at all. For example, effects associated with a large scale scheme may be significant, and whilst a smaller scheme may contribute to this effect, the cumulative effect of the schemes together may only be considered as being significant if it is of greater significance than the effect of either project in isolation. It follows that if the environmental effects associated with the Proposed Development are assessed as being negligible, cumulative effects could not be generated given that Proposed Development impacts would be very low/low, or the receptor sensitivity would be very low/low.

19.3.13 Where applicable, the assessment will consider all other relevant known developments that have the potential to generate cumulative effects with the Proposed Development, thus representing a worst-case assessment.

Study Area

19.3.14 Cumulative effects are generally unlikely to arise unless other proposed development sites are in close proximity to the Proposed Development Site, recognising that actual distance varies with the nature of the potential effect and the nature of the receptor (e.g. cumulative air quality effects could occur for developments a greater distance apart than say noise effects). Construction projects are, as a matter of routine, required to employ regulatory and managerial controls and good practice to mitigate environmental impacts, as far as reasonably practicable. Nevertheless, consideration will be given to the presence of common pathways from any nearby schemes to a single receptor, and whether there is potential for impacts of a sufficient magnitude whereby a particular receptor could experience cumulative effects that may be significant.

19.3.15 The study area for the consideration of cumulative and combined effects has been developed taking into account the predicted Zol for each technical discipline/ extent of impacts associated with the Proposed Development as detailed within **Chapters 8 to 18** of this PEI Report.

19.3.16 The study area for each environmental assessment topic is defined in the relevant PEI Report technical chapters (**Chapters 8 to 18**). Information on the likely extent of impacts associated with other developments in the area has also been considered (refer to Section 19.4).

19.3.17 The largest study area (i.e. for the assessment of potential air quality effects on designated ecological receptors) has defined the Zol within which the search for other schemes has been undertaken for the cumulative assessment.

19.3.18 The study area for the consideration of cumulative and combined effects will be reviewed and confirmed within the ES.

Consultation

19.3.19 A summary of consultation activities relevant to the cumulative and combined effects assessment is provided in Table 19.1 below.

**Table 19.1: Consultation Summary**

Consultee	Method of Consultation (Date)	Summary	Addressed
Planning Inspectorate	EIA Scoping Opinion for the Proposed Development (June 2020).	The Planning Inspectorate considers that other existing or approved development beyond the study area outlined in the scoping stage (2km for TCPA developments	The study area outlined in the scoping stage has been increased in accordance with the study areas applied for each environmental

Consultee	Method of Consultation (Date)	Summary	Addressed
		<p>and 10 km for NSIPs) could give rise to cumulative effects on the same receptors. The Planning Inspectorate notes that the ES must clearly state and justify the study area applied for each aspect. Effort should be made to agree the scope of the cumulative assessment with relevant consultation bodies.</p>	<p>assessment presented in this PEI Report. This is because distance varies with the nature of the potential effect and the nature of the receptor. The study area is now 15km to reflect the largest zone of influence for the environmental assessments, and as advised in Advice Note Seventeen (PINS, 2019a).</p>
<p>Planning Inspectorate</p>	<p>EIA Scoping Opinion for the Proposed Development (June 2020).</p>	<p>The Planning Inspectorate noted that the Little Crow Solar Park NSIP is located approximately 10km to the south-east of the Proposed Development and should be included in the cumulative assessment.</p>	<p>The Little Crow Solar Park NSIP has now been included in the long list of other developments. Other NSIP have also been reviewed within the ZoI, acknowledging those that are still at an early stage in the pre-application process.</p>
<p>Planning Inspectorate</p>	<p>EIA Scoping Opinion for the Proposed Development (June 2020).</p>	<p>The Planning Inspectorate commented that the Scoping Report does not include a methodology for assessing cumulative or combined effects and advises the Inspectorate's Advice Note 17: Cumulative Effects Assessment, which sets out the recommended approach to such assessments, is considered. The Inspectorate advises that any mitigation and/or design measures relied upon to exclude likely significant effects should be explained in the ES and appropriately secured.</p>	<p>The approach to the assessment of cumulative effects set out in PINS Advice Note Seventeen (PINS, 2019a) has been adopted. Consultation will be undertaken with North Lincolnshire Council and where significant effects are considered likely; any emerging developments noted by consultees will be included in the final cumulative effects assessment to accompany the DCO application.</p>

Consultee	Method of Consultation (Date)	Summary	Addressed
			Any mitigation and/ or design measures relied upon to avoid or reduce likely significant cumulative effects will be explained in the ES.
Planning Inspectorate	EIA Scoping Opinion for the Proposed Development (June 2020).	The Planning Inspectorate notes that the Scoping Report does not define the scope of any combined effects and the ES should be clear as to which combinations of effects it is assessing, and clearly justify the approach taken.	The scope of potential combined effects has been defined within this chapter. Combined effects will be assessed in the final ES.
Marine Management Organisation (MMO).	EIA Scoping Opinion for the Proposed Development (June 2020).	The MMO welcomes consideration of cumulative and combined effects where appropriate. The MMO notes that none of the developments identified at the Scoping stage appear to be located near to, or have any connection to, the River Trent or other nearby waterbodies. The MMO advises that the ES should also consider whether any existing operational activities (e.g. abstraction of water and discharge of effluent from existing sites) within the study area could result in cumulative or in-combination impacts to fish.	Comments noted. The ES will consider any potential cumulative effects that may arise due to proposed discharges to the marine environment. This will include discharges from Keadby 2 Power Station, which will form part of the future baseline for <b>Chapter 12: Water Resources and Flood Risk</b> (PEI Report Volume I). Existing operational activities form part of the current baseline and do not require assessment within this chapter.
Natural England	EIA Scoping Opinion for the Proposed Development (June 2020).	Natural England note the importance of considering cumulative effects of the proposal, including all supporting infrastructure, with other similar proposals and a thorough assessment of the 'in combination' effects of the proposed development with	The long list of other developments included within this chapter includes all other developments within the study area of 15km. This includes other developments at varying stages of the



Consultee	Method of Consultation (Date)	Summary	Addressed
		<p>any existing developments and current applications. A full consideration of the implications of the whole scheme should be included in the ES. All supporting infrastructure should be included within the assessment.</p> <p>Natural England advises that the cumulative impact assessment should include other proposals currently at Scoping stage. Due to the overlapping timescale of their progress through the planning system, cumulative impacts of the proposed development with those proposals currently at Scoping stage would be likely to be a material consideration at the time of determination of the planning application.</p>	<p>planning application process, including the Scoping stage.</p>
<p>North Lincolnshire Council</p>	<p>June 2020</p>	<p>North Lincolnshire Council have advised consideration should be given to running multiple power stations together (having Keadby 1, 2 and 3 supplying capacity at the same time).</p>	<p>Keadby 2 Power Station is under construction and has been noted in the short list of developments. However, as construction of this development is due for completion in 2022, prior to construction commencing for the Proposed Development, the inclusion in the short list is at this stage precautionary. It is considered more appropriate that the operational Keadby 2 Power Station including it's built infrastructure (for instance in terms of</p>

Consultee	Method of Consultation (Date)	Summary	Addressed
			<p>landscape effects) is more appropriately considered in future baseline for the Proposed Development.</p> <p>Keadby 1 Power Station has a contract to provide capacity to the grid until September 2022 and will have opportunities to secure further agreements in future auctions. Future plans for Keadby 1 Power Station will be confirmed by the Applicant in due course.</p> <p>It is recognised that it is likely that Keadby 1 Power Station would not be in operation concurrently with the Proposed Development, however uncertainty regarding plans for the timing of future closure of Keadby 1 Power Station mean that the removal of Keadby 1 Power Station structures has not been considered in the assessments in this PEI Report.</p> <p>As part of the future baseline it is therefore predicted that structures associated with Keadby 1 Power Station will continue to be present on-site.</p>

## 19.4 Cumulative Effects Assessment

- 19.4.1 An initial screening exercise (Stage 1 of the cumulative effects assessment) has been undertaken to identify potential major and other developments and plans within a 15km radius of the Proposed Development Site to create an 'initial long list' for consideration.
- 19.4.2 The initial long list was subsequently screened based on the potential for interactions with the Proposed Development across the technical disciplines considered within this PEI Report (noting that the potential for cumulative landscape and visual impacts have the potential to occur over a greater distance than, for example, cumulative noise or archaeology impacts). An 'initial short list' of relevant developments was presented in the EIA Scoping Report; this can be found within **Appendix 1A** (PEI Report Volume II).
- 19.4.3 The initial long list and short list has been revised as part of this PEI Report (Stage 2 of the cumulative effects assessment) taking into consideration more recent available on other schemes obtained from local authorities and desk based searches (e.g. Planning Portal and the Planning Inspectorate's website (PINS 2020)).
- 19.4.4 The updated short list of other schemes identified at Stage 2 of the cumulative effects assessment is presented in Table 19.2, with details of their current status and comments regarding their geographical and temporal scope in relation to the geographical and temporal scope of the Proposed Development.
- 19.4.5 All the developments identified in Table 19.2 are considered to be of such a nature and proximity to the Proposed Development Site to have the potential to generate cumulative effects when considered in context with the Proposed Development. In the ES, a final list will be presented and subject to assessment, where relevant, for each environmental topic. The location of the schemes detailed in Table 19.2 are shown in **Figure 19.1** (PEI Report Volume III).

**Table 19.2: Updated short list of projects within the 15km Zone of Influence identified at Stage 2 of the cumulative effects assessment**

Name of development	Application reference	Local planning authority	Applicant	Brief description of other development	Distance from the Proposed PCC Site	Status
Zero Carbon Humber Cluster	Zero Carbon Humber Cluster Partnership	<p>N/A – not currently progressing through either Local Planning Authority or Planning Inspectorate regime.</p> <p>Given early-stage, awareness of project and implicit linkage between the Proposed Development and this future, third party development, scoped-in to the updated short-list.</p>	To be determined	<p>Development of 'Zero Carbon Industrial Cluster' with the principle area of interest being the construction of a CO<sub>2</sub> transport and storage system across the Humber region.</p> <p>Strategic proposals also encompass a Hydrogen demonstration and test facility, installation of carbon capture technology at Drax Power Station and a geologically secure long-term CO<sub>2</sub> storage facility in the North Sea.</p>	Small section of connecting pipeline and Above Ground Installation (AGI) to connect to the wider Zero Carbon Humber Cluster CO <sub>2</sub> gathering network: On Site	<p>Not yet submitted; preliminary early-stage roadmap only. Further information is presented at <a href="https://www.zerocarbonhumber.co.uk/the-vision/">https://www.zerocarbonhumber.co.uk/the-vision/</a></p>

Name of development	Application reference	Local planning authority	Applicant	Brief description of other development	Distance from the Proposed PCC Site	Status
Keadby 2	<a href="#">Keadby II S36 Consent</a>	Department of Business, Energy and Industrial Strategy (BEIS)	Keadby Developments Limited (part of SSE)	Keadby 2 Section 36 Variation Application(s) 2016/2017/2018	On-site	Under Construction – included in short list on a precautionary basis but anticipated to be constructed and operational prior to construction of the Proposed Development commencing. Considered in future baseline in <b>Chapters 8 to 18</b> of this PEI Report.
Keadby Windfarm Extension	<a href="#">EN010070</a>	Planning Inspectorate (DCO)	SSE	Keadby Windfarm Extension	Adjacent – Off-Site	Project on hold as of 27/05/15.
Biodiversity Enhancement Area	<a href="#">PA/2020/952</a>	North Lincolnshire	Keadby Developments Limited (part of SSE)	Planning permission for the creation of a Biodiversity Enhancement Area (comprising the use of 70,000 m <sup>3</sup> of excavated soil).	Adjacent – Off-Site	Submitted 30 June 2020. Not yet determined

Name of development	Application reference	Local planning authority	Applicant	Brief description of other development	Distance from the Proposed PCC Site	Status
30 residential dwellings at Old Railway Sidings	<a href="#">PA/2019/1904</a>	North Lincolnshire	WFW Development Ltd.	Planning permission to erect 30 affordable dwellings with associated access and other works, Old Railway Sidings, A18 From Althorpe To Gunness, Althorpe, DN17 3HN	1.5km south east	Submitted 21 November 2019. Undetermined
27 residential dwellings	<a href="#">PA/2017/1513</a>	North Lincolnshire	Roger Burnett Promotions, Retirement & Death Benefit Scheme.	Outline planning permission to erect 27 dwellings with access and layout to be determined and all other matters reserved for subsequent approval, Land off the A18, Althorpe	1.5km south east	Approved 14/01/2019
14 residential dwellings at Old Railway Sidings	<a href="#">PA/2017/464</a>	North Lincolnshire	Mr T Webster	Outline planning permission for up to 14 dwellings	1.5km south east	Appeal Allowed (May 2018)
Mixed use development.	<a href="#">PA/2020/660</a>	North Lincolnshire	Rafkins (Scunthorpe) Leisure Park Limited	Planning permission for mixed use development – hotel (Class C1), gym	3.6km south east.	Undetermined

Name of development	Application reference	Local planning authority	Applicant	Brief description of other development	Distance from the Proposed PCC Site	Status
				(Class D2), retail units (Class A1), food and drink and drive-thru restaurants (Class A3/A5) – access, car parking, landscaping and associated works.		
11 industrial units.	<a href="#">PA/2019/1807</a>	North Lincolnshire	Mr Singh	Planning permission to erect 11 industrial units.	4.2km east	Undetermined
North Lincolnshire Green Energy Park	<a href="#">North Lincolnshire Green Energy Park</a>	Planning Inspectorate (DCO).	North Lincolnshire Green Energy Park Limited.	Energy Recovery Facility converting up to 650,000 tonnes per annum of Refuse Derived Fuel (RDF) to generate a maximum of 95 megawatts of electrical output (MWe) and/or 380 Mega Watts of thermal output (MWt) to provide power, heat and steam on the site of the operating	4.5km	The application is expected to be submitted to the Planning Inspectorate in Q3 2021.

Name of development	Application reference	Local planning authority	Applicant	Brief description of other development	Distance from the Proposed PCC Site	Status
				Flixborough Wharf on the River Trent.		
Residential development	<a href="#">PA/2017/824</a>	North Lincolnshire	Mr C Muscroft	Outline planning permission for residential development.	4.8km south west	Undetermined
144 dwellings.	<a href="#">PA/2020/1333</a>	North Lincolnshire	DDM Agriculture Ltd.	Outline planning permission to erect 144 dwellings with appearance, landscaping, layout and scale reserved for subsequent consideration.	4.9km south east	Undetermined
88 dwellings.	<a href="#">PA/2019/1607</a>	North Lincolnshire	Harron Homes	Planning permission to erect 88 dwellings with associated roads, drainage, service infrastructure and public open space (including demolition of existing agricultural buildings).	5.5km south east	Undetermined
Engineering operations for	<a href="#">PA/2020/537</a>	North Lincolnshire	Mr Bailey – Crowle Peatland	Planning permission to carry out engineering operations in	6.4km south west	Undetermined



Name of development	Application reference	Local planning authority	Applicant	Brief description of other development	Distance from the Proposed PCC Site	Status
railway line extension.			Railway Society	connection with laying a 373m railway line extension and construction of two railway platforms 12.2m x 2.3m.		
Residential development (110 dwellings)	<a href="#">PA/2020/1207</a>	North Lincolnshire	Moorwalk Limited	Outline planning permission for residential development (up to 110 dwellings), with public open spaces, the creation of a play area and sustainable drainage systems (SUDs) including detention basins with appearance, landscaping, layout and scale reserved for subsequent consideration.	7.5km south east	Undetermined
88 dwellings	<a href="#">PA/2019/1088</a>	North Lincolnshire	Linden Homes	Planning permission to erect 88 dwellings with associated access, drainage and landscaping.	8.9km south east.	Undetermined

Name of development	Application reference	Local planning authority	Applicant	Brief description of other development	Distance from the Proposed PCC Site	Status
122 dwellings	<a href="#">PA/2019/1107</a>	North Lincolnshire	Linden Homes	Planning permission to erect 122 dwellings with associated access, drainage and landscaping.	9.5km south east	Undetermined
Little Crow Solar Park	<a href="#">Little Crow Solar Park</a>	Planning Inspectorate (DCO)	INRG SOLAR (Little Crow) Ltd	Energy scheme comprising ground mounted solar photovoltaic arrays, electrical storage, grid connection infrastructure and other infrastructure integral to the construction and/or operation of the energy scheme. The solar park will have an installed maximum capacity of 150MW and battery storage of up to 90MW.	10km south east	Scoping Report Submitted. Application expected to be submitted Q4 2020.
66 dwellings	<a href="#">PA/2019/1414</a>	North Lincolnshire	Mark Simmonds Planning Services	Outline planning permission for residential development of up	13km north east	Undetermined

Name of development	Application reference	Local planning authority	Applicant	Brief description of other development	Distance from the Proposed PCC Site	Status
				to 66 dwellings with all matters reserved or subsequent approval.		
Solar PV farm and associated infrastructure	<a href="#">20/01345/FUL</a>	Doncaster Council	Lightsource BP	Variation of condition 3 of planning permission 14/01554/FULM (Solar Photovoltaic (PV) Farm with associated infrastructure (ancillary equipment includes inverters, transformers, small embedded sub-stations and a grid connection building)) granted on 20/04/15 to allow for an additional 15 years of operation.	14.2km north west	Planning permission granted

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## 19.5 Cumulative Effects Information Gathering and Assessment (Stages 3 and 4)

19.5.1 The process of gathering information on those short-listed developments and considering the potential interaction with the Proposed Development is ongoing (Stage 3). The results of the cumulative and combined impact assessment (Stage 4 of the assessment) will be reported within the ES that accompanies the application for development consent.

## 19.6 Combined Effects

19.6.1 The technical assessments reported in the PEI Report have identified a number of effects which would occur as result of the construction and operation of the Proposed Development, ranging from negligible or minor (not significant) effects to moderate and major (significant) effects. Several effects on one or more receptors could theoretically interact or combine to result in a combined effect which is more or less significant. When considering combined effects, the mitigation measures as set out in **Chapters 8 to 18** (including those embedded in the Proposed Development design and those that relate to how the Proposed Development will be constructed to avoid impacts), must be taken into account (i.e. only residual effects (after mitigation) should be considered).

19.6.2 Typically, receptors which are likely to experience a combined effect are those which are more sensitive to change, for example people, whilst those receptors which are more tolerant to change, for example aspects of the physical environment such as geology, are less likely to experience a combined effect. Health effects on the local population are considered to be combined effects – and these are considered further in **Appendix 16A: Population and Health Signposting** (PEI Report Volume II).

19.6.3 It should be noted that where, for example, the impact of noise on the setting of heritage receptors or on ecological receptors has been considered as part of heritage/ecology assessments, such effects will not be considered further in this chapter of the ES. Furthermore, where only one effect is identified for a particular receptor or only one topic identifies effects on that receptor, there are no common receptors and therefore no potential for a combined effect to occur.

19.6.4 Where particular technical chapters (e.g. **Chapter 12: Water Resources and Flood Risk**) identify an impact which results in a potential indirect effect on ecology (for example pollution of a watercourse) this will be assessed as an interdisciplinary effect in the technical chapters only and not considered further as a combined effect in this chapter if there is no interaction with other specialist assessments which would result in additional combined effects on protected species or habitat.

19.6.5 Mitigation of combined effects is best achieved through management and control measures to prevent the individual impacts in the first instance or reduce the impacts themselves and therefore reduce the likelihood of such interactions occurring.

19.6.6 The approach outlined will be used to assess potential combined effects in the ES, where more than one technical assessment chapter identifies a residual effect of minor significance or greater on an individual or group of common receptors.

19.6.7 Potential common receptors will be identified following a review of the technical chapters and the assessment will be completed in accordance with Table 19.3 below.

**Table 19.3: Approach to Assessment of Combined Effects**

Topic/ Chapters	Assessment Stage (Construction - C, Operation - O Decommissioning - D) Potential Common Receptors Potential Interactions	Assessment of combined effect (significant or not significant)
e.g. <b>Chapter 8:</b> Air Quality; <b>Chapter 9:</b> Noise and Vibration and <b>Chapter 14:</b> Landscape and Visual Amenity	To be confirmed	To be confirmed

## 19.7 Limitations or Difficulties

- 19.7.1 The cumulative assessment reported within the ES will be based on information available at the time of the assessment regarding the environmental effects of the other potential or committed schemes in the vicinity of the Proposed Development Site that have been scoped into the assessment.
- 19.7.2 Any limitations that are encountered during the individual assessments will be detailed within each of the Chapters referenced.

## 19.8 References

DECC (2011). Department of Energy and Climate Change. Overarching National Policy Statement for Energy (EN-1).

EEA (2014). European Economic Area. Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment.

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