



Appendix 2.3 Net Gain Assessment

Kingston Solar Farm

07/02/2022



Disclaimer

Neo Environmental Limited shall have no liability for any loss, damage, injury, claim, expense, cost or other consequence arising as a result of use or reliance upon any information contained in or omitted from this document.

Copyright © 2022

The material presented in this report is confidential. This report has been prepared for the exclusive use of Renewable Energy Systems (RES) Ltd. The report shall not be distributed or made available to any other company or person without the knowledge and written consent of Renewable Energy Systems (RES) Ltd or Neo Environmental Ltd.

Neo Environmental Ltd									
Head Offi	ce - Glasgow:								
Wright Bu	siness Centre,								
1 Lonr	nay Road,								
Gla	isgow.								
GB	3 4EL								
T 0141	773 6262								
E: <u>info@neo-er</u>	wironmental.co.uk								
Warrington Office:	Rugby Office:								
Cinnamon House,	Valiant Suites,								
Crab Lane,	Lumonics House, Valley Drive,								
Warrington,	Swift Valley, Rugby,								
WA2 0XP.	Warwickshire, CV21 1TQ.								
T: 01925 661 716	T: 01788 297012								
E: info@neo-environmental.co.uk	E: info@neo-environmental.co.uk								
Ireland Office:	Northern Ireland Office:								
Johnstown Business Centre,	83-85 Bridge Street,								
Johnstown House,	Ballymena,								
Naas,	Northern Ireland,								
Co. Kildare.	BT43 5EN.								
T: 00 353 (0)45 844250	T : 0282 565 04 13								
E: info@neo-environmental.ie	E: info@neo-environmental.co.uk								





Appendix 2.3 Net Gain Assessment

Prepared For:

Renewable Energy Systems (RES) Ltd

Prepared By:

Daniel Flenley BSc (Hons) MPhil Grad CIEEM Eiméar Rose Cunningham BSc (Hons)

NameDateEdited By:Daniel Flenley07/02/2022Checked By:Huw Townsley07/02/2022NameSignatureApproved ByPaul Neary4444











Contents

Introduction	5
Legislation, Planning Policy and Guidance	7
Methodology	11
Net Gain Assessment	12





INTRODUCTION

Background

2.1. Neo Environmental Ltd has been appointed by Renewable Energy Systems (RES) Ltd (the "Applicant") to complete a Net Gain Assessment for a proposed 49.9MW solar farm with associated infrastructure (the "Proposed Development") on lands circa 1.3km south of Gotham and c. 0.75km northwest of East Leake, Nottinghamshire (the "Application Site").

Development Description

- 2.2. The Proposed Development will consist of the construction of a 49.9MW solar farm with bifacial solar photovoltaic (PV) panels mounted on metal frames, new access tracks, underground cabling, perimeter fencing with CCTV cameras and access gates, two temporary construction compounds, substation and all ancillary grid infrastructure and associated works.
- 2.3. The Proposed Development will result in the production of clean energy from a renewable energy resource (daylight) and will also involve additional landscaping including hedgerow planting and improved biodiversity management.

Site Description

- 2.4. The Application Site is located on lands circa 1.3km south of Gotham and c. 0.75km northwest of East Leake, Nottinghamshire; the approximate centre point of which is Grid Reference E453185, N328739. Comprising 16 agricultural fields and additional ancillary areas, the Application Site measures c. 80.65 hectares (ha) in total, with only c. 55.65 hectares accommodating the solar arrays themselves. See Figure 1 of Volume 2: Planning Application Drawings for details.
- 2.5. The Proposed Development Site is split into two sections, north and south, by an area of woodland, Leake New Wood. Both sections lie on elevated, gently undulating land ranging between 87 96m AOD. The northern section extends across several rectilinear agricultural fields largely contained by existing mixed woodland providing good screening for the wider area. These include Gotham Wood to the north, Cuckoo Bush to the east, Leake New Wood to the south and Crownend Wood to the west. The southern section is also surrounded by pockets of woodland including Oak Wood, Crow Wood and Ash Spinney.
- 2.6. The Application Site is in an area with an existing industrial presence with a telecoms mast located on the southwestern boundary of Field 7, a wood pole line along the boundary between Fields 7 and 8 and within the southern section of Fields 4 and 5 and overhead lines located along the southern boundary of Field 16 and the eastern boundary of Field 15 (See Figure 3 of Volume 2: Planning Application Drawings for field numbers).





- 2.7. The surrounding area is semi-rural in nature with the site being surrounded by agricultural fields and woodland in most directions. The area is however punctuated by individual farmsteads and Rushcliffe Golf Club is located on the eastern boundary of Field 15 in the southern section of the site. There are also various industrial brownfield sites within the locality including Charnwood Truck Services located directly southwest of Field 4. Additionally, there is a large-scale power station located beyond the A453, circa 1.58km north of the site.
- 2.8. Recreational routes include a number of Bridleways (BW) which cross or abut the Site providing connectivity to the wider Kingston Estate. These include Gotham BW No. 10, 11 and 12 and West Leake BW's No. 5 and 13.West Leake BW No. 5, also known as the Midshires Way, is also a Long-Distance Walking Association (LDWA) Route bordering the southern boundary of Fields 15 and 16. While there are several field drains throughout the Application Site, it lies entirely within Flood Zone 1, an area described as having a "Low probability" of flooding.
- 2.9. The Application Site will be accessed from Wood Lane, which is an unadopted road. Delivery vehicles will exit the M1 at junction 24, signposted A453 Nottingham (S), onto the A453 and travel in a northeast direction for approximately 4.3km, before taking the exit onto West Leake Lane. This road will be travelled on in a southern direction for approximately 1.5km, before turning left onto Kegworth Road. Vehicles will travel northeast along this road for approximately 1.3km before turning right into Wood Lane.

Statement of Authority

- 2.10. The assessment has been conducted by an ecologist registered with the Chartered Institute of Ecology and Environmental Management ("CIEEM"). All work has been carried out in line with the relevant professional guidance, including CIEEM's Guidelines for Report Writing¹.
- 2.11. Daniel Flenley has 15 years of ecology experience including undertaking surveys and writing associated reports. A graduate member of CIEEM, he has recently applied for full membership. Daniel has experience in undertaking and managing a range of surveys and assessments including BMPs, Ecological Impacts Assessments ("EcIAs"), extended phase 1 habitat surveys and ornithological and protected species surveys, for over 500 projects. These include a variety of development types such as energy, commercial, industrial and transport infrastructure. Daniel holds a great crested newt class licence and has worked as an accredited agent under bat and amphibian mitigation and reptile survey licences.
- 2.12. Eiméar Rose Cunningham is an Ecologist in the process of receiving membership with the Chartered Institute of Ecology and Environmental Management (CIEEM), with 2 years' experience in the environmental/planning sector. She has experience of conducting habitat surveys as well as some protected species surveys, including bats. In previous roles Eiméar Rose has experience of GIS map interpretation for large scale infrastructure projects. Furthermore, Eiméar Rose has experience in the completion of ecological report writing.

¹ CIEEM, 2017. Guidelines for Ecological Report Writing. Second Edition. Available at www.cieem.net





LEGISLATION, PLANNING POLICY AND GUIDANCE

National Legislation

Environment Act 2021

2.13. This Act creates a requirement for developments in England to achieve a minimum 10% **net gain for biodiversity**. The Bill is expected to lead to secondary legislation specifying e.g. how this should be implemented at the local authority level.

Planning Policy

National Planning Policy Framework (2021)

- 2.14. The National Planning Policy Framework (NPPF)² sets out the government planning policies for England and how they should be applied. With regards to ecology and biodiversity, Chapter 15 "Conserving and Enhancing the Natural Environment", paragraph 174, states that planning policies should:
 - Minimise impacts on, and provide **net gains** in, biodiversity.
 - Recognise the wider benefits of natural capital and ecosystem services.
- 2.15. Under these aims, paragraph 175 stresses the need to plan for natural capital at a catchment or landscape scale, across local authority boundaries. Paragraph 180 sets out the principles that local planning authorities should apply when determining planning applications. These include refusing planning permission if significant harm cannot be avoided, adequately mitigated or compensated, and requiring design to incorporate biodiversity improvement opportunities in and around developments (especially where this can secure **measurable net gains** for biodiversity).

Rushcliffe Local Plan

2.16. The *Rushcliffe Local Plan Part 1: Core Strategy*³ was adopted in December 2014 and is the current Local Plan for the borough in which the Application Site falls. In support of the Core Strategy, development management policies with additional details are set out in the *Local*

³<u>https://www.rushcliffe.gov.uk/media/1rushcliffe/media/documents/pdf/planningandbuilding/planningpolicy/corestrategye</u>xamination/9%20Local%20Plan%20Part%201%20Rushcliffe%20Core%20Strategy.pdf





² Department for Housing, Communities and Local Government (2021). National Planning Policy Framework

*Plan Part 2: Land and Planning Policies*⁴, adopted in October 2019. The relevant policies set out within the Plan include the following ecological provisions.

Core Strategy Policy 16: Green Infrastructure, Landscape, Parks and Open Spaces

2.17. **Policy 16** stresses the importance of green infrastructure and open space in the borough. Among other points, it notes that developments will only be approved where "*existing and potential Green Infrastructure corridors and assets are protected and enhanced*".

Core Strategy Policy 17: Biodiversity

2.18. Policy 17 has been put in place to achieve biodiversity net gain over the Core Strategy period. The Council aim to do this by:

"a) protecting, restoring, expanding and enhancing existing areas of biodiversity interest, including areas and networks of priority habitats and species listed in the UK and Nottinghamshire Local Biodiversity Action Plans;

b) ensuring that fragmentation of the Green Infrastructure network is avoided wherever possible and improvements to the network benefit biodiversity, including at a landscape scale, through the incorporation of existing habitats and the creation of new habitats;

c) seeking to ensure new development provides new biodiversity features, and improves existing biodiversity features wherever appropriate;

d) supporting the need for the appropriate management and maintenance of existing and created habitats through the use of planning conditions, planning obligations and management agreements; and

e) ensuring that where harm to biodiversity is unavoidable, and it has been demonstrated that no alternative sites or scheme designs are suitable, development should as a minimum firstly mitigate and if not possible compensate at a level equivalent to the biodiversity value of the habitat lost."

2.19. The policy also stipulates:

"Designated national and local sites of biological [...] importance for nature conservation will be protected in line with the established national hierarchy of designations and the designation of further protected sites will be pursued."

"Development on or affecting other, non-designated sites or wildlife corridors with biodiversity value will only be permitted where it can be demonstrated that there is an overriding need for the development and that adequate mitigation measures are put in place."

⁴<u>https://www.rushcliffe.gov.uk/media/1rushcliffe/media/documents/pdf/planningandbuilding/planningpolicy/lapp/adoption/</u> /Rushcliffe%20LP%20Part%202_Adoption%20version.pdf



Local Plan Part 2 Policy 16: Renewable Energy

2.20. This policy states that "*Proposals for renewable energy schemes will be granted planning permission where they are acceptable in terms of [various areas including]:*

c) ecology and biodiversity".

Local Plan Part 2 Policy 21: Green Belt

- 2.21. Policy 21 simply states: "Applications for development in the Green Belt will be determined in accordance with the National Planning Policy Framework."
- 2.22. As Paragraph 140 of the National Planning Policy Framework (NPPF) 2021 notes: "Green Belt boundaries should only be altered where exceptional circumstances are fully evidenced and justified". During consultation, the Council have made it clear that justification for the Proposed Development should cover the avoidance of adverse effects on ecological assets.

Local Plan Part 2 Policy 34: Green Infrastructure and Open Space Assets

2.23. Policy 34 states:

"Where a proposal would result in the loss of Green Infrastructure which is needed or will be needed in the future, this loss should be replaced by equivalent or better provision in terms of its usefulness, attractiveness, quantity and quality in a suitable location. Replacement Green Infrastructure should, where possible, improve the performance of the network and widen its function."

Local Plan Part 2 Policy 36: Designated Nature Conservation Sites

2.24. This policy covers the criteria for accepting or rejecting proposals that are likely to have a direct or indirect adverse effect on nationally and locally designated sites.

Local Plan Part 2 Policy 37: Trees and Woodlands

2.25. This policy covers adverse impacts on mature trees and justified replacement of trees. Provisions include:

"2. Planning permission will not be granted for development which would adversely affect an area of ancient, semi-natural woodland or an ancient or veteran tree, unless the need for, and public benefits of, the development in that location clearly outweigh the loss.

"3. Wherever tree planting would provide the most appropriate net-gains in biodiversity, the planting of additional locally native trees should be included in new developments. To ensure tree planting is resilient to climate change and diseases a wide range of species should be included on each site."





Local Plan Part 2 Policy 38: Non-Designated Biodiversity Assets and the Wider Ecological Network.

2.26. This policy states:

"Where appropriate, all developments will be expected to preserve, restore and re-create priority habitats and the protection and recovery of priority species in order to achieve net gains in biodiversity".

- 2.27. Policy 38 also specifies design principles for development within Biodiversity Opportunity Areas.
- 2.28. The Ecological Assessment of the Proposed Development will consider each of the policies outlined above.





METHODOLOGY

2.29. Net gain assessment is currently carried out using DEFRA's Biodiversity Metric 2.0 (JP029)⁵. According to Natural England (the DEFRA agency responsible for creating the biodiversity metric assessment methodology):

The Biodiversity Metric 2.0 provides a way of measuring and accounting for biodiversity losses and gains resulting from development or land management change. Biodiversity Metric 2.0 updates and replaces the original Defra biodiversity metric. Biodiversity Metric 2.0 has been developed with input from a wide range of environmental NGOs, developers, land managers, Government agencies and other interested parties.

Biodiversity Metric 2.0 is being published as a 'beta test' version to enable wider user feedback (see below). The metric comes with a free calculation tool designed to simplify and speed-up the whole calculation process.

The Biodiversity Metric 2.0 encompasses both area (e.g. grasslands) and linear (such as rivers and streams) habitats.

2.30. This report uses the methodology and calculation tool referenced above. Broadly speaking, the metric assessment involves calculating scores for 'biodiversity units' (indicators of site's biodiversity value) pre- and post-development. Each score is based on the area (or, for linear habitats, the length) of different habitats present or proposed, their ecological distinctiveness, connectivity, condition, how long they take to create, and how likely it is that any proposed habitat creation will succeed.

Limitations

2.31. Data for a full river condition assessment were not available. Watercourses within the Application Site will remain intact and only experience negligible change as a result of the Proposed Development. Linear habitat assessment was therefore limited to hedgerows, and it is not considered that the inclusion of rivers would substantially alter the conclusions of the assessment.

⁵ Available at http://publications.naturalengland.org.uk/publication/5850908674228224





NET GAIN ASSESSMENT

- 2.32. Biodiversity unit calculations for the habitats within the Application Site pre-construction are given in Tables 1 and 2 below. Further details of baseline habitats can be found in Appendix
 2.1: Phase 1 Habitat Survey Report.
- 2.33. Loss calculations are given in Tables 3 and 4, and post-construction biodiversity unit calculations in Tables 5 to 7 below. Further details of the proposed habitat creation and enhancement can be found in Appendix 2.2: Biodiversity Management Plan and Figure 1.14 of Volume 3, Technical Appendix 1: Landscape and Visual Impact Appraisal.
- 2.34. **Table 8** shows the overall results of the net gain calculations. This highlights a **44.88% gain** in area habitat units. Such a gain well exceeds the 10% requirement of the Environment Act. This should be considered an excellent level of compensation for the loss of mostly arable and improved agricultural grassland habitat.
- 2.35. A **76.21%** gain in hedgerow units is predicted. This is again well in excess of 10%, showing that the Proposed Development is expected to lead to **significant biodiversity net gain**.





Table 1: Baseline Area Habitat Biodiversity Units

H	abitats and areas		Habitat distinctiven	ess	Habitat con	dition	Eco	logical connecti	vity	Strategi	c significance		Ecological baseline
Broad Habitat	Habitat type	Area (ha)	Distinctiveness	Score	Condition	Score	Ecological connectivity	Connectivity	Connectivity multiplier	Strategic significance	Strategic significance	Strategic position multiplier	Total habitat units
Cropland	Cropland - Cereal crops	26.4279	Low	2	N/A - Agricultural	1	Low	Unconnected habitat	1	Within area formally identified in local strategy	High strategic significance	1.15	60.78
Grassland	Grassland - Modified grassland	41.8278	Low	2	Moderate	2	Low	Unconnected habitat	1	Within area formally identified in local strategy	High strategic significance	1.15	192.41
Grassland	Grassland - Modified grassland	6.6347	Low	2	Poor	1	Low	Unconnected habitat	1	Within area formally identified in local strategy	High strategic significance	1.15	15.03
Woodland and forest	Woodland and forest - Wet woodland	1.2	Medium	4	Poor	1	Low	Unconnected habitat	1	Within area formally identified in local strategy	High strategic significance	1.15	5.52
Woodland and forest	Woodland and forest - Wet woodland	0.4	Low	2	Poor	1	Low	Unconnected habitat	1	Within area formally identified in local strategy	High strategic significance	1.15	0.92
Heathland and shrub	Heathland and shrub - Bramble scrub	0.08	Medium	4	Poor	1	Low	Unconnected habitat	1	Within area formally identified in local strategy	High strategic significance	1.15	0.37
Grassland	Grassland – Other neutral grassland	1.5797	Medium	4	Moderate	2	Low	Unconnected habitat	1	Within area formally identified in local strategy	High strategic significance	1.15	14.53
Grassland	Grassland – Tall herb communities	0.32	High	6	Moderate	2	Low	Unconnected habitat	1	Within area formally identified in local strategy	High strategic significance	1.15	4.42





Heathland and shrub	Heathland and shrub - Bramble scrub	0.2	Medium	4	Moderate	2	Low	Unconnected habitat	1	Within area formally identified in local strategy	High strategic significance	1.15	1.84
Urban	Urban – Vacant/derelict land/bare ground	0.567	Low	2	Poor	1	Low	Unconnected habitat	1	Within area formally identified in local strategy	High strategic significance	1.15	1.30

Table 2: Baseline Hedgerow Biodiversity Units

Hedgerow type	Length (km)	Distinctiveness	Score	Condition	Score	Connectivity	Connectivity multiplier	Strategic significance	Strategic position multiplier	Suggested action to address habitat losses	Total hedgerow units
Native Hedgerow with trees	6.67	Low	2	Poor	1	Unconnected habitat	1	Within area formally identified in local strategy	1	Same distinctiveness band or better	15.341
Native Hedgerow	4.23	Low	2	Poor	1	Unconnected habitat	1	Within area formally identified in local strategy	1	Same distinctiveness band or better	9.729
Native Hedgerow - Associated with bank or ditch	0.32	Medium	4	Poor	1	Unconnected habitat	1	Within area formally identified in local strategy	1	Like for like or better	1.472





Table 3: Baseline Area Habitat Loss

Broad Habitat	Habitat type	Area (ha)	Area retained	Area enhanced	Area succession	Baseline units retained	Baseline units enhanced	Baseline units succession	Area lost	Units lost
Cropland	Cropland - Cereal crops	26.4279	3.163473	0	0	7.28	0.00	0.00	23.26	53.51
Grassland	Grassland - Modified grassland	41.8278	2.753875	0	0	12.67	0.00	0.00	39.07	179.74
Grassland	Grassland - Modified grassland	6.6347	1.973378	0	0	4.54	0.00	0.00	4.56	10.49
Woodland and forest	Woodland and forest - Wet woodland	1.2	1.179445	0	0	5.43	0.00	0.00	0.02	0.09
Woodland and forest	Woodland and forest - Wet woodland	0.4	0.4	0	0	0.92	0.00	0.00	0.00	0.00
Heathland and shrub	Heathland and shrub - Bramble scrub	0.08	0.08	0	0	0.37	0.00	0.00	0.00	0.00
Grassland	Grassland – Other neutral grassland	1.5797	0.90302	0	0	8.31	0.00	0.00	0.68	6.23
Grassland	Grassland – Tall herb communities	0.32	0.198632	0	0	2.74	0.00	0.00	0.12	1.67
Heathland and shrub	Heathland and shrub - Bramble scrub	0.2	0.2	0	0	1.84	0.00	0.00	0.00	0.00
Urban	Urban – Vacant/derelict land/bare ground	0.567	0.293	0	0	0.67	0.00	0.00	0.27	0.63





Table 4: Baseline Hedgerow Loss. 'Units retained' refers only to units that will be retained without being enhanced.

Hedgerow type	Length retained	Length enhanced	Units retained	Units enhanced	Length lost	Units lost
Native Hedgerow with trees	6.66	0	15.318	0	0.01	0.023
Native Hedgerow	2.212	1.828	5.0876	04.2044	0.19	0.437
Native Hedgerow - Associated with bank or ditch	0.32	0	1.472	0	0	0

Table 5: Site Area Habitat Creation

										Temporal	multiplier	Difficulty	multipliers	
Proposed habitat	Area (ha)	Distinctiveness	Score	Condition	Score	Connectivity	Connectivity multiplier	Strategic significance	Strategic position multiplier	Time to target condition (years)	Multiplier	Difficulty of creation	Multiplier	Habitat units delivered
Grassland -								High						
Other	58 008829	Medium	Д	Moderate	2	Unconnected	1	strategic	1 15	10	0 700	Low	1	373 73
neutral	50.000025	Wiedram	7	Woderate	2	habitat	-	significance	1.15	10	0.700	2000	-	373.73
grassland								Significance						
Woodland														
and forest								High						
– Other	1 2604	Medium	1	Fairly	25	Unconnected	1	strategic	1 15	32+	0 3 2 0	Medium	0.67	2 11
woodland;	1.2004	weututti	4	Good	2.5	habitat	T	significance	1.15	32+	0.320	Weaturn	0.07	5.11
broaleaved								Significance						
woodland														
Woodland						Unconnected		High	1.15			Voru		
and forest	0.054	High	6	Moderate	2	babitat	1	strategic		32+	0.320	Very	0.1	0.02
– Wood						navitat		significance				riigii		





pasture														
and														
parkland														
Grassland								High	1.15					
– Lowland	0 484552	V High	8	Fairly	25	Unconnected	1	strategic		12	0.652	High	0 33	2 40
Meadows	0.101002		Ũ	Good	2.0	habitat	-	significance			0.052		0.00	2.10
Grassland								High	1.15					
– Other	1 001 492	Madium	4	Madarata	n	Unconnected	1	strategic		10	0 700	Loui	1	C 45
neutral	1.001482	weatum	4	woderate	2	habitat	T	significance		10	0.700	LOW	T	0.45
grassland														

Table 6: Site Hedgerow Creation

Habitat type	Length (km)	Distinctiveness	Score	Condition	Score	Connectivity	Connectivity multiplier	Strategic significance	Strategic position multiplier	Time to target condition (years)	Time to target multiplier	Difficulty of creation multiplier	Hedge units delivered
Native Hedgerow	2.24	Low	2	Good	3	Unconnected habitat	1	High Strategic Significance	1.15	10	0.700	1	10.82





Page **18** of **19**

Table 7: Site Hedgerow Enhancement

Baseline habitat	Proposed	Distinctiveness movement	Condition movement	Length (km)	Distinctiveness	Condition	Ecological connectivity	Strategic significance	Time to target condition (years)	Difficulty of enhancement category	Hedge units delivered
Native Hedgerow	Native Species Rich Hedgerow	Low-Medium	Lower Distinctiveness Habitat - Good	1.828	Medium	Good	Low	Within area formally identified in local strategy	10	Medium	14.07





Table 8: Biodiversity Metric Results

	Habitat units	297.12
On-site baseline	Hedgerow units	26.54
	River units	0.00
	_	
On-site post-intervention	Habitat units	430.47
(Including habitat retention, creation, enhancement &	Hedgerow units	46.77
(mondamy napital relevancy) of cation) emandement a	River units	0.00
	-	
	Habitat units	0.00
Off-site baseline	Hedgerow units	0.00
	River units	0.00
Off-site post-intervention	Habitat units	0.00
On-site post-intervention	Hedgerow units	0.00
(Including habitat retention, creation, enhancement &	River units	0.00
Total net unit change	Habitat units	133.34
Total her unit change	Hedgerow units	20.23
(including all on-site & off-site habitat retention/creation)	River units	0.00
Total net % change	Habitat units	44.88%
	Hedgerow units	76.21%
(including all on-site & off-site habitat creation + retained habitats)	River units	0.00%



