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Great North Road Solar and Biodiversity Park

Statement of Common Ground with Norwell Solar Steering Group

Document Reference – EN010162/APP/8.12A

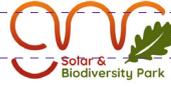
Revision number 4

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Infrastructure Planning (Applications: Prescribed Forms and Procedure)
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Revision History

Revision	Revision Date	Authorised By	Position	Comment
Issue 1	2/12/25	ES	Head of Planning	1 st draft for NSFSG review
Issue 2	9/12/25	PP	EIA Lead	2nd draft for Deadline 1
Issue 3	23/12/25	PP	EIA Lead	3rd draft for NSFSG review
Issue 4	TBC			4th draft for NSFSG review

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1 INTRODUCTION

1.1 PURPOSE OF THIS DOCUMENT

- 1.1.1 This Statement of Common Ground (SoCG) has been prepared to support an application (the Application) for a Development Consent Order (DCO) from the Secretary of State (SoS) for Energy Security and Net Zero under Section 37 of the Planning Act 2008 (PA 2008) for the proposed Great North Road Solar and Biodiversity Park Development (the Development). The Application has been submitted by Elements Green Trent Limited (the Applicant).
- 1.1.2 This SoCG has been produced to confirm to the Examining Authority (ExA) where agreement has been reached between the Parties, and where agreement has not (yet) been reached, in relation to the assessment of the effect of the Development on climate change.
- 1.1.3 SoCGs are an established means in the planning process of allowing all Parties to identify and focus on specific issues that may need to be addressed during the examination. This SoCG will be revised and updated as discussions between the Parties progress during the Examination.

1.2 PARTIES TO THIS STATEMENT OF COMMON GROUND

- 1.2.1 This SoCG has been prepared by (1) Elements Green Trent Limited as the Applicant and (2) Norwell Solar Farm Steering Group (collectively, 'the Parties').

1.3 TERMINOLOGY

- 1.3.1 In the table in the Issues section of this SoCG:
- "Agreed" (Green) indicates where the issue has been resolved;
 - "Under discussion" (Amber) indicates where a matter is the subject of ongoing discussion; and
 - "Not Agreed" (Red) indicates a final position.
- 1.3.2 Where Norwell Solar Farm Steering Group expresses agreement, it does so only in so far as it has considered the issue and on the basis of the information provided by the Applicant. Agreement is offered without prejudice to the submissions of other interested Parties who may have greater knowledge of technical or site-specific issues.

1.4 RECORD OF RELEVANT CORRESPONDENCE

- 1.4.1 The Applicant has undertaken consultation and engagement with Norwell Solar Farm Steering Group at and following the statutory pre-application consultation process. This process afforded Norwell Solar Farm Steering Group the opportunity to provide responses to the information provided at the statutory consultation stage of the pre-application process.

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1.4.2 Table 1-1 identifies the key meetings and consultation that has taken place between the Parties to date.

Table 1-1 Record of Correspondence

Date	Type (meeting, etc.)	Topic
09/12/2024	E-mail correspondence	Number of homes calculation by the Applicant
31/01/2025	Public consultation event, Carlton-on-Trent	Climate change assessment and the basis for the calculations of embodied carbon emissions and avoided carbon emissions savings
22/12/2025	Meeting	Greenhouse gas emission calculations

1.4.3 It is agreed that this is an accurate record of the key meetings and consultation undertaken between the Parties in relation to the issues addressed in this SoCG.

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2 CURRENT POSITION OF THE APPLICANT AND NORWELL SOLAR FARM STEERING GROUP

2.1 PARAMETERS FOR ASSESSMENT

Table 2-2 Development Parameters for Assessment

Ref	Relevant Documents	Description of Matter	Applicant's Position	Norwell Solar Farm Steering Group's Position	Status
2.1.1	Post-hearing submission	The export capacity of the grid connection	Is 800 MW (AC)	Agreed	Agreed
2.1.2	Post-hearing submission	The overplanting ratio (i.e., the sum of solar PV capacity (DC) divided by the grid export capacity)	Is 1.4	Agreed	Agreed
2.1.3	Post-hearing submission	The <u>theoretical</u> sum of capacity of the solar PV modules	Is 1,120 MWp (800 MW x 1.4)	Agreed if theoretical is added as in column 3.	<u>Agreed</u>
2.1.4	Post-hearing submission	Inclusion of BESS in proposals	The BESS is included in proposals, assumed in ES Chapter 15 to be 440 MW, 2-hour	<u>It is agreed that the BESS is included in the proposals</u>	<u>Agreed</u>
<u>2.1.5</u>		<u>Inclusion of BESS in proposals</u>	<u>The Applicant believes the BESS is required for the project and that there is a demand for a BESS for grid support</u>	<u>The Group believe that that existing 52GWh of BESS under construction or with planning approval already far outweighs the national targets. Additionally, there are now 3 BESS under or awaiting</u>	<u>Under discussion</u>

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Ref	Relevant Documents	Description of Matter	Applicant's Position	Norwell Solar Farm Steering Group's Position	Status
				construction in the local area alone, including one for the GNR project.	

2.2 ILLUSTRATIVE ELECTRICITY GENERATION

Table 2-3 Illustrative Electricity Generation

Ref	Relevant Documents	Description of Matter	Applicant's Position	Norwell Solar Farm Steering Group's Position	Status
2.2.1	Post-hearing submission	The principle of quoting a number of homes is illustrative of the generation capacity of the Development	The principle of quoting a number of homes is illustrative of the generation capacity of the Development as opposed to suggesting where the electricity will be used.	Agreed	Agreed
2.2.2	Post-hearing submission	Calculation of the number of homes equivalent of electricity that would be	The Applicant has stated that the figure is approximately 400,000	The Group's calculations are likely to be amended now that at this late stage, it has been suggested	Under discussion

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Ref	Relevant Documents	Description of Matter	Applicant's Position	Norwell Solar Farm Steering Group's Position	Status
		generated by the Development	homes. The calculation of the energy production of the Development is not yet agreed between the parties. See Appendix 1 for the energy yield model parameters.	bifacial panels will be used, contrary to what was suggested in Appendix A.15.1. Re-calculation cannot be completed unless the original PVsyst report is published, as has been requested.	
2.2.3	Post-hearing submission	The average annual figure to be used for domestic electricity use in the calculation	2.7 MWh/y AC, this being the figure previously published by Ofgem.		Under discussion

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2.3 GREENHOUSE GAS ANALYSIS

Table 2-4 Greenhouse Gas Analysis

Ref	Relevant Documents	Description of Matter	Applicant's Position	Norwell Solar Farm Steering Group's Position	Status
2.3.1	Post-hearing submission	Use of the carbon intensity to be used as the baseline comparator for export of solar PV-generated electricity	It is agreed that the use of the grid carbon intensity at the 2024 figure (as shown in Tables A15.1.20 and A15.1.4) <u>should not</u> be	The Group's previous answer related to Table 15.1.21 as that was in the original comment from the Applicant but changed after our response. The Group agree that	Under discussion

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Ref	Relevant Documents	Description of Matter	Applicant's Position	Norwell Solar Farm Steering Group's Position	Status
			<p>used to inform the conclusions of the assessment for solar PV as it is not worst-case, and that the long-run marginal carbon intensity for generation (as shown in Tables A15.1.19 and A15.1.5) <u>should</u> be used to inform the assessment for solar PV.</p> <p>This is different to most previous solar DCO applications (e.g., Stonestreet, Tillbridge, Byers Gill, Gate Burton), which have used the CCGT carbon intensity as the baseline comparator, so the approach taken in the Development ES is a major departure from previous assessments. This was raised in the Secretary of State's decision letter on Gate Burton Solar Park (Planning Inspectorate project reference</p>	<p><u>figures in Tables A15.1.20 and A.15.1.4 should not be used and also agree that the long run carbon intensity figures in Tables A15.1.19 and A15.1.5 should be used.</u></p>	

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Ref	Relevant Documents	Description of Matter	Applicant's Position	Norwell Solar Farm Steering Group's Position	Status
			EN010131).		
2.3.2	Post-hearing submission	Method for apportioning electricity export from the solar panels to the BESS	<p><u>For the purposes of assessing greenhouse gas emissions, the BESS is assumed to charge from 15% capacity to 100% capacity once each day, and then export that electricity to get back to 15%. That electrical energy is assumed to come out of the total generated by the solar PV modules. The remaining electrical energy generated by the solar PV modules is assumed to be discharged directly to the grid. This is a conservative approach; any import from the grid to the batteries would lead to additional carbon savings, because of the greater carbon intensity of the grid at times of peak demand compared to non-peak demand.</u></p>	<p>The Group do not agree that the BESS will only be charged once during any 24 hour period. <u>The BESS charging figures in Table A15.1.19 point to there being a daily cycle throughout the year, discharging solar generated MWh's. The Group's belief is that there will also be a full morning cycle discharge from overnight charging.</u> It agrees that there may initially be an emissions savings from using overnight grid charged battery energy at morning peak but given the national BESS pipeline and the number of BESS ahead of GNR in the queue, there will quickly be less need for gas peaker generation. This is very difficult to calculate as the 2030 action plan for some reason sets targets in GW as opposed to GWh.</p>	Under discussion

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Ref	Relevant Documents	Description of Matter	Applicant's Position	Norwell Solar Farm Steering Group's Position	Status
2.3.3		Usage of the BESS	The BESS is expected to be used approximately 1.5 times per day on average ("1.5 cycles"). This would include charging both from the solar PV modules during the day, and from the grid at night.	The Group are awaiting clarification from the Applicant on this, having been told this during Statutory Consultation.	
2.3.4	Post-hearing submission	Uncertainty in the future baseline	The carbon intensity of electricity generation in the absence of the Development (that would be avoided by the operation of the Development), particularly from the batteries, is the largest element of uncertainty in the assessment of savings in greenhouse gas emissions.	Agreed.	Agreed
2.3.5	Post-hearing submission	The baseline carbon emissions from electricity supplying future peak electricity demand periods	In the absence of any official predictions of future grid peak-time carbon intensity, Chapter 15 and TA A15.1 use displaced CCGT as the emission	NSFSG argue that this leads to unrealistically high carbon intensity over the 40 year operational period, and propose two alternative scenarios for decreasing carbon intensity at peak times over that	Under discussion

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Ref	Relevant Documents	Description of Matter	Applicant's Position	Norwell Solar Farm Steering Group's Position	Status
			saving arising from export from the BESS, as this is what happens currently. Previous Secretary of State decisions for solar projects do not comment on peak-time carbon intensity.	<u>period</u> . The view of the Group is that the approach of using pegged carbon intensity is inconsistent with the judgement by Mr Justice Sullivan in 'Rochdale' and paragraph 4.2.12 of NPS EN-1.	
2.3.6	Post-hearing submission	Calculations of the savings of emissions of greenhouse gases as set out in ES TA A15.1 (APP-285), Table A15.1.19	The following are the major items not yet agreed: <ul style="list-style-type: none"> • Calculation of the energy production of the Development (as per 2.2.2). See Appendix 1. • Operational life of key components of the Development: solar PV modules and batteries. • Use of concrete/foundation material and its carbon footprint 		Agreed
2.3.7	Post-hearing submission	Calculations of the embodied emissions of	The carbon emissions associated with the	There needs to be further discussion about the embodied	Under discussion

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Ref	Relevant Documents	Description of Matter	Applicant's Position	Norwell Solar Farm Steering Group's Position	Status
		greenhouse gases as set out in ES TA A15.1 (APP-285) – solar PV	production of the solar PV modules is based on a peer-reviewed journal publication, which included in its calculations the embodied emissions from the mounting structures and inverters. The ES assessment included calculations of the embodied emissions of the mounting structures and inverters in addition to the solar PV modules, because of variability in types of mounting structure and inverter, and hence uncertainty in whether the values in the peer reviewed journal would be appropriate for the Development. The calculated embodied emissions from the mounting structures and inverters was c. 583 kteCO2e (more than 15% of the total embodied emissions). The estimate	carbon for the mounting structures. Having checked with other sources on embodied carbon for the panels, the Group would not accept there has been a substantial over-estimate though the panel production emissions factor of 701kgCO ₂ /kWp chosen by the Applicant is slightly higher than the research recently examined by the Group. A review of the EPDs for 9 (mainly Chinese) major panel manufacturers over 5 recent years would suggest that 670kgCO ₂ /kWp is a more up to date figure. This would represent a 4% reduction in emissions which is not substantial. The Group would agree however that there has to be some degree of uncertainty.	

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			of emissions associated with the production of the solar PV modules is therefore likely to be a substantial over-estimate, but in the absence of more specific (and yet worst-case) data, has been used in the assessment.		
2.3.8	Post-hearing submission	Calculations of the embodied emissions of greenhouse gases as set out in ES TA A15.1 (APP-285) – component replacement	Carbon emissions associated with the production and transportation of replacement components, expected to be more than 15 years after the start of the Development's operational phase, <u>may</u> be substantially less than the emissions associated with the components used in the construction phase, due to global decarbonisation. The extent of this is not well predicted in literature, and hence the assessment in the ES assumes emissions	The Group would accept that if global decarbonisation does actually take place then that will affect some production emissions. The major production emissions are in the supply chains abroad and China, from where the major transportation emissions also stem. Unlike UK decarbonisation reduced emissions modelling by the DESNZ, there is far less certainty about how this will move globally or in the foreign supply chains. There is significant doubt about the anticipated progress in decarbonisation in developing countries which source many of the raw materials required for this project. The Group agree that in	Under discussion

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Ref	Relevant Documents	Description of Matter	Applicant's Position	Norwell Solar Farm Steering Group's Position	Status
			for replacement (which represents c. 800 kteCO ₂ e, i.e., c. 25% of the total embodied emissions) would be the same (per component) as at construction, which will be a substantial over-estimate of emissions, but in the absence of more specific (and yet worst-case) data, has been used in the assessment.	the absence of any reliable data, embodied carbon figures used might be a worse case but it is impossible to tell. This course of action would be 'Rochdale compliant'.	
2.3.9	Post-hearing submission	Calculations of the embodied emissions of greenhouse gases as set out in ES TA A15.1 (APP-285) – other parameters	The assessment of emissions from other parameters (i.e., excluding those listed in 2.3.5, above) is agreed to within c. 10% (or less) of the total carbon emission of the Development. I.e., to within c. 300,000 teCO ₂ e.	Further discussions required.	Under discussion

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3 SIGNATURES

3.1.1 The above SoCG is agreed between the Applicant and Norwell Solar Farm Steering Group, as specified below.

Duly authorised for and on behalf of Elements Green Trent Limited	Name
	Job Title
	Date
	Signature

Duly authorised for and on behalf of Norwell Solar Farm Steering Group	Name
	Job Title
	Date
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4 APPENDIX 1: ENERGY YIELD MODEL PARAMETERS

4.1 INTRODUCTION

4.1.1 This appendix summarises the key parameter values in the PVSyst model for the Great North Road Solar and Biodiversity Park (the Development) used by the Applicant to inform the assumptions made in the Environmental Statement (ES) Volume 2, Chapter 15: Climate Change [EN010162/APP/6.2.15] [APP-058].

4.2 SCOPE AND CONTENT

4.2.1 The Applicant has several PVSyst models that are used for internal verification purposes. There is no single, fixed model for the Development, because the design isn't fixed at this pre-consent stage. The full model is not provided; it is commercially confidential, as it references specific components and the publication of this could prejudice subsequent procurement processes to the commercial detriment of the Applicant.

4.2.2 The parameters presented in this appendix are the principal determinants of the electrical energy yield as referred to in Volume 2, Chapter 15: Climate Change [EN010162/APP/6.2.15] [APP-058] and in ES Volume 4, Appendix 15.1: Lifecycle Greenhouse Gas Evaluation [EN010162/APP/6.4.15.1] [APP-285]. The parameter values presented in this document are consistent across the Applicant's models, with only minor variations in response to alternative PV module choices, etc.

4.3 PARAMETER VALUES

4.3.1 Key parameters and their values are set out in Table 4-1.

Table 4-1 Greenhouse Gas Analysis

<u>Parameter</u>	<u>Value</u>
<u>Latitude</u>	<u>53.15°(N)</u>
<u>Longitude</u>	<u>-0.88°(W)</u>
<u>Altitude</u>	<u>16 m</u>
<u>Weather data</u>	<u>Norwell Woodhouse PVGIS api TMY</u>
<u>Grid connected system</u>	<u>Unlimited sheds</u>
<u>Tilt</u>	<u>20°</u>
<u>Azimuth</u>	<u>0°</u>
<u>PV Array</u>	
<u>Nb. of modules</u>	<u>1,513,512 units</u>
<u>Pnom total</u>	<u>1,120 MWp</u>
<u>Inverters</u>	

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Parameter	Value
<u>Nb. of units</u>	<u>117 units</u>
<u>Total power</u>	<u>804.258 kWac</u>
<u>Grid power limit (limit applied at the inverter level)</u>	<u>800.0 MWac</u>
<u>Grid lim. Pnom ratio</u>	<u>1.4</u>
<u>Perf. Ratio PR</u>	<u>87.80%</u>
<u>Bifacial perf. ratio</u>	<u>84.64%</u>
<u>Bifacial model geometry</u>	
<u>Sheds spacing</u>	<u>8.00 m</u>
<u>Sheds width</u>	<u>4.74m</u>
<u>Limit profile angle</u>	<u>24.4°</u>
<u>GCR Bifacial</u>	<u>59.20%</u>
<u>Height above ground</u>	<u>0.8 m</u>
<u>Bifacial model definitions</u>	
<u>Ground albedo</u>	<u>0.2</u>
<u>Bifaciality factor</u>	<u>85%</u>
<u>Rear shading factor</u>	<u>5%</u>
<u>Rear mismatch loss</u>	<u>10%</u>
<u>Shed transparent fraction</u>	<u>0%</u>
<u>System Production</u>	
<u>Produced Energy (P50)</u>	<u>1140.0 GWh/year</u>
<u>Specific production (P50)</u>	<u>1018 kWh/kWp/year</u>
<u>Perf. Ratio PR</u>	<u>87.80%</u>

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