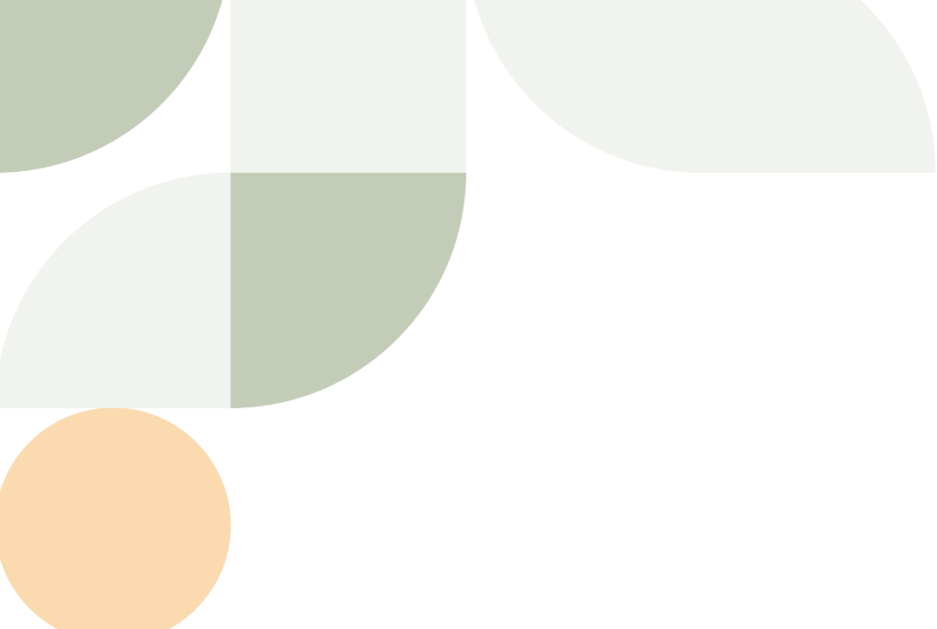




# **Lime Down**

## Solar Park

### **Climate Change Response to Stop Lime Down Appendix D: University of Derby's response to [REP3-132]**

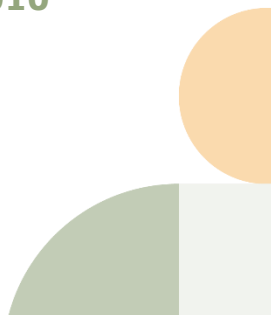
**August 2026**

**Revision 1**

**Planning Inspectorate Reference: EN010168**

**Document Reference: EXAM/9.65**

**The Infrastructure Planning (Examination Procedure) Rules 2010**



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## 1 Climate Change Response to Stop Lime Down (SLD) Appendix D

**Table 1 Applicant's response to SLD Appendix D, Table 2.1**

| Section Reference (as given in [REP3-132]) | Summary of Applicant Response (as given in [REP3-132])                                                                                                                                                                                                                                                                                                            | Comments from UoD in reply                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Applicant's response provided at Deadline 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
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| 1.0 Introduction                           |                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 1.2                                        | Table 1, 2nd row comments on Construction and whole-life GHG emissions and is aimed at the responder: Wilts Council and UoE.                                                                                                                                                                                                                                      | <p>There is a slight error in this in that the summary of comments as given in Table 1 is actually a combination of:</p> <ul style="list-style-type: none"> <li>• UoD's estimates for construction emissions (it doesn't include UoD's adjustments to operational emissions).</li> <li>• UoE's estimates for construction and operational emissions.</li> </ul>                                                                                                                                                      | This comment is noted.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 2.0 Emissions Calculations                 |                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 2.1.6                                      | Regarding construction plant emissions, ES Chapter 7 [APP-059] acknowledges that detailed fuel consumption wasn't available at the time due to absence of contractors specific information. However, based on experience from comparable solar developments and short duration of construction activities, construction plant emissions are expected to represent | <p>Regarding UoD's re-estimates of certain GHG emissions, the Applicant covered construction plant fuel with their comment (left). (UoD's estimate for this was 2,500-3,500 tCO<sub>2</sub>e which represents 0.04% of total GHG emissions as worse case).</p> <p>The Applicant made no further comments on the following construction issues from UoD (other than a mention in Table 1):</p> <ul style="list-style-type: none"> <li>• increase in cabling emissions from 876 to 20,762 tCO<sub>2</sub>e.</li> </ul> | <p>The Applicant makes note of this comment. <b>ES Volume 1, Chapter 7: Climate Change (Rev 2) [EN010168/APP/6.1]</b> submitted at Deadline 5 has been updated where appropriate in response to SLDs Post Hearing Submission, Appendix D [REP4-132].</p> <p>The methodology for assessing construction cabling, concrete, and non-transformer substation and operational sulphur hexafluoride, cable replacement, tracker panel moving components and non-transformer substation refurbishment emissions remains unchanged. The difference in methodology between the one proposed by the UoD is not</p> |

| Section Reference (as given in [REP3-132]) | Summary of Applicant Response (as given in [REP3-132])                                                                                                                                                    | Comments from UoD in reply                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Applicant's response provided at Deadline 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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|                                            | less than 1% of total lifecycle greenhouse gas emissions.                                                                                                                                                 | <ul style="list-style-type: none"> <li>increase in concrete emissions from 5 to 1,526-3,509 tCO<sub>2</sub>e.</li> <li>inclusion of 2,500-3,700 tCO<sub>2</sub>e for separate non-transformer substation emissions.</li> </ul> <p>The Applicant made no comments on UoD's operational emission additions:</p> <ul style="list-style-type: none"> <li>Sulphur Hexafluoride (estimate 1,830 to 8,542 tCO<sub>2</sub>e).</li> <li>on-site cable replacement (estimate 1,660 tCO<sub>2</sub>e).</li> <li>mounting and tracker panel moving components (862 tCO<sub>2</sub>e).</li> <li>non-transformer substation refurbishment (2400 tCO<sub>2</sub>e).</li> </ul> <p>While we note the limited time available to respond in this technical note, we would welcome the Applicant commenting upon the UoD's (and UoE's) larger GHG inventory in the future. Currently, the Applicant has not fully engaged with that part of the assessment.</p> | <p>anticipated to draw significant changes to the results presented in the ES. As such, proportional approach has been applied. The updated assessment Chapter includes the updated figures for two different configurations P2 (Tracked panels) and P3 (Fixed panels) that reflect technological advancements since the preparation of <b>ES Volume 1, Chapter 7: Climate Change [APP-059]</b>.</p> <p>The Solar PV array and mounting emissions are updated in the assessment to reflect the two configurations explained above. The emission factor for PV arrays and steel required for mountings were updated from those previously used in the assessment as more information is now available.</p> |
| 2.1.7 to 2.1.8                             | Applicant response to UoE was also relevant to UoD: this refers to the intentionally conservative generation estimates, based on design information available at the time presented in ES Chapter 7 [APP- | We agree that higher generation would increase avoided emissions, and our report deliberately used the more favourable ES lifetime generation figure (24.26 TWh) for exactly that reason.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | The Applicant makes note of this comment. <b>ES Volume 1, Chapter 7: Climate Change (Rev 2) [EN010168/APP/6.1]</b> submitted at Deadline 5 has been updated where appropriate in response to SLDs Post Hearing Submission, Appendix D <b>[REP4-132]</b> .                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

| Section Reference (as given in [REP3-132]) | Summary of Applicant Response (as given in [REP3-132])                                                                                                                                                                                                                                                                                                                  | Comments from UoD in reply                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Applicant's response provided at Deadline 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
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|                                            | 059]. Should operational electricity generation exceed these values, associated GHG savings would be greater than reported, thereby increasing overall climate benefit of the Scheme. Applicant and UoE both conclude that Scheme would generate substantial quantities of renewable electricity and contribute to the decarbonisation of the UK electricity situation. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | The energy generated by the Scheme was updated <b>ES Volume 1, Chapter 7: Climate Change (Rev 2) [EN010168/APP/6.1]</b> submitted at Deadline 5 to reflect technological advancements since the Application in September 2025. The estimated yield for a 3P (Fixed panels) configuration is 560,000MWh/yr and 442,300MWh/yr for a 2P configuration (Tracker panels). Considering the panels degradation (1% in the 1 <sup>st</sup> year and 0.35% onwards, as per the example EPD used in the calculations and the updated ES Chapter) this results in 25.07 TWh and 31.75 TWh for Tracked and fixed panels respectively over the 60-year Scheme lifespan.                                                                                                                                                                     |
| 2.1.9                                      | A notional figure of 842,000 panels is assumed for this technical note. This reflects an estimated maximum achievable installed capacity of the Scheme within the defined design parameters and accommodates technological advancements and increase efficiency in panel design and mounting systems since the preparation of ES Chapter 7 [APP-059].                   | <p>This is a new and significant statement. It confirms that the 598,260-panel configuration assessed in the ES is not the maximum achievable within the design envelope, and therefore that the ES did not assess the reasonable worst case for embodied and lifecycle emissions.</p> <p>On feasibility, using the module wattage class implied by the stated module weight of 38.3 kg (approximately 650 to 700 Wp, ES 7.10.13 and our [UoD Appendix J1, 2026 (Appendix A)], 842,000 panels correspond to roughly 547 to 589 MWp. At the stated module area of 3.10 m<sup>2</sup> the actual panel surface area would be approximately 261 ha, this implies a ground coverage ratio of</p> | <p>The Applicant makes note of this comment. <b>ES Volume 1, Chapter 7: Climate Change (Rev 2) [EN010168/APP/6.1]</b> submitted at Deadline 5 has been updated to include the uplifted number of panels presented in 9.33 Climate Response to Wiltshire Council Appendix B of Written Rep and SLD Appendix J1 <b>[REP3-132]</b> in response to SLDs Post Hearing Submission, Appendix D <b>[REP4-132]</b>.</p> <p>In that response, a notional figure of approximately 842,000 panels has been assumed. This reflects an estimated maximum achievable installed module quantity of the Scheme within the defined design parameters, using fixed panels. This accommodates consideration of forthcoming panel arrangements reflective of technological advancements and increased efficiencies in panel design and mounting</p> |

| Section Reference (as given in [REP3-132]) | Summary of Applicant Response (as given in [REP3-132])                                                                                                                                                                                                                                                                                                                                                                                                | Comments from UoD in reply                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Applicant's response provided at Deadline 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <p>approximately 53 to 64 per cent, above the typical utility-scale range of 35 to 50 per cent, and a power density of roughly 0.73 to 0.79 MWp/ha, materially above comparable UK solar NSIPs. These are our estimates, a clarification of the installed DC capacity corresponding to 842,000 panels would explain how that count is accommodated within the design parameters.</p> <p>We note in Section 3 of the technical note, which mentions that the site is sufficiently land-constrained that an 18 degree tilt and 7.5 m pitch are required. It is not clear how the same constrained site accommodates a 41 per cent increase in panel numbers.</p> | <p>systems, since the original Application in September 2025. For the purposes of the updates to <b>ES Volume 1, Chapter 7: Climate Change (Rev 2) [EN010168/APP/6.1]</b>, this figure has been incorporated.</p> <p>Also see response below to Energy Output in 3.1.1 regarding pitch &amp; tilt.</p>                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>3.0 Energy Output</b>                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 3.1.1                                      | <p>This comments that UoD's PVsyst yield for Lime Down 500Mwp bifacial scenarios appear to be overstated, the most likely explanations being an elevated irradiance input and optimistic or undisclosed system loss assumptions, combined with array design choices that are impractical for a land constrained UK utility site. The value of 1,289 kWh/KWp (based on 644.7 GWh/yr for 500 MWp) is not credible for UK Single-AxisTracker arrays.</p> | <p>Our solar-model runs were presented as an independent sense check of the ES output figures, prepared using transparent optimum default assumptions because the ES disclosed no tilt, pitch, module wattage, loss table or installed DC capacity. The 18 degree tilt and 7.5 m pitch now cited by the Applicant appear nowhere in the ES; ES Chapter 3 Table 3-1 states a fixed-panel tilt range of 10 to 35 degrees, so the Applicant's design assumptions were not inferable from the Application documents at the time our report was prepared.</p>                                                                                                       | <p>The Applicant maintains that the ES provides a robust and transparent basis for assessment by utilising the Rochdale Envelope approach, which defines maximum and minimum parameters rather than a single, fixed design as presented by UoD. As acknowledged in the query, <b>ES Volume 1, Chapter 3: The Scheme, Table 3-1 [APP-055]</b> explicitly defines the design envelope for fixed panels as having a tilt range of 10 to 35 degrees. The 18-degree tilt and 7.5m pitch cited in recent sensitivity assessments fall correctly within this assessed range and represent a realistic configuration for the majority of the scheme in its location informed by the latest technological advancements. Higher ratios of</p> |

| Section Reference (as given in [REP3-132]) | Summary of Applicant Response (as given in [REP3-132])                                              | Comments from UoD in reply                                                                                                                                                 | Applicant's response provided at Deadline 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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|                                            |                                                                                                     | It is interesting to note that the UoD researchers, working independently, achieved 1,220 kWh/m <sup>2</sup> using Global Solar Atlas default values and a 38° tilt angle. | <p>tilt, up to 35 degrees, would only be used to mitigate for ground unfavourable topography, such as North sloping land.</p> <p>The Applicant considers it standard and necessary practice for the detailed technical specifications, such as precise module wattage, be finalised at the detailed design stage, post-consent, as secured by Requirement 5 of the <b>Draft DCO [REP4-004]</b>, to ensure the Scheme can utilise the most efficient technology available at the time of construction.</p> <p>Regarding the UoD researchers achieving 1,220 kWh/m<sup>2</sup> using Global Solar Atlas default values, the Applicant notes that while such independent checks can be helpful to provide generalised irradiance levels in localised areas, they rely on a number of optimum default conditions that do not reflect the complex site-specific technical constraints for the Scheme. As such, these figures appear highly inflated. Additional considerations including, topography, loss factors, shading constraints, cable voltages &amp; distances, clipping and export limitations applicable to the Scheme are unlikely to be taken into account.</p> <p>Finally, the Applicant's reported energy output is intentionally conservative to ensure that the Environmental Statement provides a legally defensible and realistic basis for assessment.</p> |
| 3.1.2 to 3.1.3                             | Table 3.1 presents a comparison of UoD's projected energy outputs using PVsyst with the Applicant's | See points above in response to 3.1.1. In response to absence of line-by-line loss table, UoD were validating the given energy                                             | See response to 3.1.1 above regarding the default optimised conditions in the online tool used to inform the UoD's assumptions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

| Section Reference (as given in [REP3-132]) | Summary of Applicant Response (as given in [REP3-132])                                                                                                                                                                  | Comments from UoD in reply                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Applicant's response provided at Deadline 5                                                                                                                                                                                                 |
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|                                            | projected energy outputs from Solar Gis and Meteonorm for Fixed Tilt (FT) and Single Axis Trackers (SAT). UoD's irradiance values are substantially higher. The UoD report does not disclose a line by line loss table. | output data from the ES [APP-059] and used the modelling system default values based on no other information available at the time.<br><br>We have subsequently used Global Solar Atlas with a tilt angle of 18° and get 498 GWh/yr and 1171 KWh/m <sup>2</sup> which is still higher than the Table 3.1 values.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                             |
| 3.1.4                                      | UoD FT result is consistent with a high tilt and while the 38° used may be a theoretical optimum for UK latitudes, it is not practical on a constrained UK site.                                                        | We were not aware of the Applicant's 18° tilt angle at the time of writing but we accept that disclosure aids comparison, and we can further work on our model configurations and provide those details. We note, however, that neither the ES nor the Technical Note publishes the reports, loss tables or design parameters underlying the ES generation figures or Table 3.1. We have found that a tilt angle in Global Solar Atlas achieves 498 GWh/yr and 1171 KWh/m <sup>2</sup> .<br><br>Separately, the Applicant's own Table 3.1 shows single-axis tracker output exceeding fixed-tilt output in every simulation presented (570.1 against 524.1 GWh on SolarGIS irradiance; 588.7 against 536.9 GWh on Meteonorm). The ES reports the opposite ordering (tracker 415 GWh below fixed 438 GWh).<br><br>This apparent reversal of outputs was raised in our report [UoD Appendix J1, 2026] and | See response to 3.1.1 above.<br><br><b>ES Volume 1, Chapter 7: Climate Change (Rev 2) [EN010168/APP/6.1]</b> submitted at Deadline 5 has been updated where appropriate in response to SLDs Post Hearing Submission, Appendix D [REP4-132]. |

| Section Reference (as given in [REP3-132]) | Summary of Applicant Response (as given in [REP3-132])                                                                                                                                                                                                                 | Comments from UoD in reply                                                                                                                                                                                                                                                                                                                                                                                                          | Applicant's response provided at Deadline 5                                                                                                                                                                                                                                                                                                                                                                                                                 |
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|                                            |                                                                                                                                                                                                                                                                        | by the University of Exeter [UoE Appendix B, 2026] and remains unexplained in the Technical Note. It also bears on ExQ1 CC1.3, which asks the Applicant to confirm that tracker panels were treated as the worst case in the carbon calculation.                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 3.1.5                                      | Irradiance dataset selection has a direct effect on yield. SolarGIS represents the accepted industry standard.                                                                                                                                                         | We accept this but were not aware that this was the modelling system used by the Applicant at the time of writing our report.                                                                                                                                                                                                                                                                                                       | The Applicant notes this comment and refers to 3.1.1 regarding the optimised default conditions applied to the use of any online tool and the conservative presentation of output in the Applicant's application.                                                                                                                                                                                                                                           |
| 3.1.6                                      | Applicants mentions that transparency in loss assumptions are essential and that full, line-by-line breakdown (soiling, LID, mismatch, AC and DC wiring) would be required to validate PVsyst outputs provided by UoD.                                                 | Again refer to point made in response to 3.14 above regarding using modelling as validation of given energy outputs in the ES [APP-059]. given no other information available at the time of writing. We believe we used a reasonable expert approach based on the information provided.                                                                                                                                            | The Applicant notes this comment and refers to 3.1.1 and 3.1.5 above.                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>5.0 Payback Year</b>                    |                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 5.1.1                                      | Applicant refers to whole-life emissions being reported (as per ISEP guidance) gross by life stage, any avoided emissions being presented separately as contextual information and not netted off the inventory to claim a "payback" year or to determine significance | Our payback analysis applied the comparison framework the ES itself constructed. ES Chapter 7 calculates avoided emissions against the 2029 grid factor and reports net savings (ES paras 7.10.91 to 7.10.96, including net saving figures of 253,839 tCO <sub>2</sub> e for fixed and 218,611 tCO <sub>2</sub> e for tracker panels). The technical note itself presents netted values throughout Table 8.1 under the heading 'Net | The Applicant notes this comment. <b>ES Volume 1, Chapter 7: Climate Change (Rev 2) [EN010168/APP/6.1]</b> submitted at Deadline 5 has been updated where appropriate in response to SLDs Post Hearing Submission, Appendix D [REP4-132].<br><br>The Applicant acknowledges the representation regarding the application of a payback or break-even analysis using projected future UK grid emission factors. The lifecycle greenhouse gas intensity of the |

| Section Reference (as given in [REP3-132]) | Summary of Applicant Response (as given in [REP3-132]) | Comments from UoD in reply                                                                                                                                                                                                                                                                                                                                   | Applicant's response provided at Deadline 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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|                                            |                                                        | <p>Benefit'. This methodology was simply adopted in testing sensitivity to the grid. We have reviewed the ISEP guidance and NPS EN-1 paragraph 5.3.4 and find no prohibition on payback or break-even analysis; gross reporting by life stage and sensitivity testing of the netted comparison are not mutually exclusive, and our report presents both.</p> | <p>Scheme was compared with the projected UK grid carbon intensity in the first year of operation (2029) to provide context regarding the carbon performance of the Scheme at the point electricity generation commences.</p> <p>The Applicant recognises that UK grid carbon intensity is projected to decrease over time as additional low-carbon generation is deployed. However, the assessment considers the lifecycle greenhouse gas emissions associated with the Scheme and the contribution it makes to meeting national decarbonisation and renewable energy objectives.</p> <p>Clearly there are other factors at play which provide context to the Applicant's assessment of lifecycle greenhouse gas emissions.</p> <p>Firstly, the Applicant notes that if additional low-carbon generation is not deployed to the grid, then UK grid carbon intensity will not decrease. This was evidenced in the Climate Change Committee's Progress in Reducing Emissions 2026 Report to Parliament which states, at page 13, that "electricity supply emissions did not fall in 2025. While emissions from coal fell to zero that year, gas generation rose slightly, driven by a combination of factors including a fall in net imports of electricity and nuclear outages" i.e. a reduced share of low-carbon generation (nuclear) drives a higher UK grid carbon intensity.</p> |

| Section Reference (as given in [REP3-132]) | Summary of Applicant Response (as given in [REP3-132]) | Comments from UoD in reply | Applicant's response provided at Deadline 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
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|                                            |                                                        |                            | <p>This is important within the context of the government's aim to pave the way to "decarbonising the wider economy by 2050 as we pursue the electrification of heat in buildings, transport, and industry" such that "By 2050, annual electricity demand is likely to at least double" <b>Statement of Need [REP1-085]</b> paragraph 2.9.1. Therefore, while increasing supplies from lower carbon energy sources may only help to sustain (rather than further reduce) an already low grid carbon intensity, increasing supplies will drive carbon reductions in other sectors which are not accounted for in this analysis.</p> <p>The Applicant notes that the representor's payback analysis applies a different analytical purpose to the comparison presented in the ES.</p> <p>While such sensitivity testing (as described above, or as used by the representor) may provide additional context, it does not alter the lifecycle emissions calculated for the Scheme, nor the conclusions of the climate assessment set out in ES Chapter 7.</p> <p>In recent Development Consent Orders (DCOs) for The Peartree Hill Solar Farm Order 2026, The One Earth Solar Farm Order 2026 and The Springwell Solar Farm Order 2026, the carbon payback periods provided included a comparison of the Schemes with the combined-cycle gas turbine (CCGT) power plant carbon intensity (although at least in the case of One Earth a mixed grid alternative baseline</p> |

| Section Reference (as given in [REP3-132]) | Summary of Applicant Response (as given in [REP3-132])                                                                                                                                                                                | Comments from UoD in reply                                                                                                                                                                                                                        | Applicant's response provided at Deadline 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
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|                                            |                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                   | <p>assessment was also provided). The Peartree Hill Solar Farm Order 2026 estimated a payback period of 13 years, while both The One Earth Solar Farm Order 2026 and The Springwell Solar Farm Order 2026 reported payback periods of approximately 3 years. When compared with a CCGT baseline, Lime Down has a payback year of less than 3 years of operation for both fixed and tracked panels. Nevertheless, the predicted grid average intensity for the first year of operation is an appropriate baseline against which to estimate future carbon savings.</p> <p>As stated, the comparison of the Scheme's carbon intensity with the UK grid projection is not "like-for-like". For example, the UK Grid GHG Intensity values (as per DESNZ 2023) are based on territorial and operational emissions, while the Scheme's inventory accounts for global and lifetime emissions. The Scheme would nonetheless represent an emissions saving and would support the trajectory to net zero, as the grid average during the Proposed Development's operation will include fossil fuel generation.</p> |
| 5.1.3                                      | Applicant comments that given ongoing future emissions and requirement to report inventories gross, it is not methodologically sound to state that "construction emissions are removed by year X". Instead the appropriate comparison | <p>REP3-132 section 6.1.5 p13 compares the Grid and the Scheme's operational performance in 2029 i.e. year 1 (on a like for like basis):</p> <ul style="list-style-type: none"> <li>Scheme GHG intensity is 28-29 gCO<sub>2</sub>e/kWh</li> </ul> | <p>The Applicant notes this comment. <b>ES Volume 1, Chapter 7: Climate Change (Rev 2)</b> [EN010168/APP/6.1] submitted at Deadline 5 has been updated where appropriate in response to SLDs Post Hearing Submission, Appendix D [REP4-132].</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

| Section Reference (as given in [REP3-132]) | Summary of Applicant Response (as given in [REP3-132])                                                                                                                                                  | Comments from UoD in reply                                                                                                                                                                                                                                                                                                                                                                                   | Applicant's response provided at Deadline 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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|                                            | is to demonstrate the Scheme's operational carbon intensity is lower than the opening-year grid average as per ES Chapter 7 (sections 7.4.20 to 22).                                                    | <ul style="list-style-type: none"> <li>UK Grid GHG intensity is 49 gCO<sub>2</sub>e/kWh</li> </ul> <p>Using the same comparator, this means that according to (DESNZ, 2023) figures of the UK Grid Intensity, which were used in the ES, in the year 2033 (i.e. quite early on in the Scheme's lifetime) the Grid outperforms the Scheme, achieving values less than 28 gCO<sub>2</sub>e/kWh thereafter.</p> | <p>As well as well as comments provided previously, the Applicant notes that the representor's payback analysis applies a different analytical purpose to the comparison presented in the ES. While such sensitivity testing may provide additional context, it does not alter the lifecycle emissions calculated for the Scheme, nor the conclusions of the climate assessment set out in <b>ES Volume 1, Chapter 7: Climate Change [APP-059]</b>.</p> <p>See response to 5.1.1 regarding payback year.</p>                                                                                                                                                                                                                                          |
| 5.1.4                                      | Applicant comments that significance is judged on alignment with NZ trajectory and evidence that reasonable measures to reduce emissions have been taken, not on achieving a particular "payback year". | UoD would agree in principle but would draw attention to the point made above in 5.1.1 and 5.1.3 which are relevant to this issue.                                                                                                                                                                                                                                                                           | <p>The Applicant notes this comment. <b>ES Volume 1, Chapter 7: Climate Change (Rev 2) [EN010168/APP/6.1]</b> submitted at Deadline 5 has been updated where appropriate in response to SLDs Post Hearing Submission, Appendix D [REP4-132].</p> <p>As well as comments provided previously, the Applicant notes that the representor's payback analysis applies a different analytical purpose to the comparison presented in the ES. While such sensitivity testing may provide additional context, it does not alter the lifecycle emissions calculated for the Scheme, nor the conclusions of the climate assessment set out in <b>ES Volume 1, Chapter 7: Climate Change [APP-059]</b>.</p> <p>See response to 5.1.1 regarding payback year.</p> |
| 5.2.1 to 5.2.5                             | These sections question UoD's comparison of the Scheme with the UK Grid as not being "like-for-like".                                                                                                   | We accept the observation about system boundaries in principle, and we note the                                                                                                                                                                                                                                                                                                                              | The Applicant notes this comment. <b>ES Volume 1, Chapter 7: Climate Change (Rev 2) [EN010168/APP/6.1]</b> submitted at Deadline 5 has                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

| Section Reference (as given in [REP3-132])                                                                            | Summary of Applicant Response (as given in [REP3-132])                                                                                                                                                                                                                                                                                                                                                                                                                 | Comments from UoD in reply                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Applicant's response provided at Deadline 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                       | For example, the UK Grid GHG Intensity values (as per DESNZ 2023) are based on territorial and operational emissions, whereas the Scheme's inventory accounts for global and lifetime emissions. This biases the contextual comparison towards an understatement of emissions savings. Renewable energy contributes to a decarbonised grid and similarly, BESS grid-balancing function further reduces fossil fuel dependency.                                         | <p>following, point that has already been observed in our response to 5.1.3 above.</p> <p>The Scheme adopts the approach in the ES to compare its operational performance with that of the UK grid in the first year of operation (2029) with the Scheme achieving 28 gCO<sub>2</sub>e/kWh as compared to the UK Grid at 49 gCO<sub>2</sub>e/kWh. However, given that there is not a better approach to use, by the year 2033 (which is early on in the Scheme's lifecycle) the Grid is already performing better with values lower than 28 gCO<sub>2</sub>e/kWh [DESNZ, 2023].</p> | <p>been updated where appropriate in response to SLDs Post Hearing Submission, Appendix D [REP4-132].</p> <p>As well as well as comments provided previously (e.g in response to 5.1.1 above), the Applicant notes that the representor's payback analysis applies a different analytical purpose to the comparison presented in the ES. While such sensitivity testing may provide additional context, it does not alter the lifecycle emissions calculated for the Scheme, nor the conclusions of the climate assessment set out in <b>ES Volume 1, Chapter 7: Climate Change [APP-059]</b>.</p> <p>See response to 5.1.1 regarding payback year.</p> |
| 7.0 comparison of scheme's carbon emissions with similar schemes (This in response to the Wilts Council/UoE's report) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 7.1.3                                                                                                                 | Applicant refers to importance of like-for-like comparison. In reference to comment from UoE re: unusually high emissions compared to other Schemes and the suggestion that methodology or accounting boundaries may be driving the outcome. Applicant observes that "interested party's observation appears to conflate territorial, operational-only figures (commonly reported in high level comparisons); with the Scheme's global, lifecycle inventory (including | Whilst this point was aimed at Wilts Council/UoE, it is also relevant to UoD, in that we compared the Schemes with the UK Grid. We acknowledge the comment but are also mindful of the point that we raised in section 5.2.1 to 5.2.5 above.                                                                                                                                                                                                                                                                                                                                        | This comment is noted.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

| Section Reference (as given in [REP3-132]) | Summary of Applicant Response (as given in [REP3-132])                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Comments from UoD in reply                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Applicant's response provided at Deadline 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                            | overseas manufacturing and sea freight), which is broader by design and therefore higher than territorial operational numbers for "similar schemes"                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>8.0 Scenario Testing</b>                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 8.1                                        | Table 8.1 is presented as a sensitivity check on: shorter operational lifespan of 40 years as opposed to current 60-year proposed, 50% uplift in HGV traffic and Increased number of solar panels. It concludes that the Scheme's overall GHG emissions are relatively insensitive to any increases in construction traffic and panel numbers. Reducing the number of operational years from 60 to 40 years substantially reduces the carbon benefit but that the Scheme is still estimated to deliver a net reduction in GHGs over its operational lifetime compared to baseline scenario. | <p>We appreciate that there was not sufficient time to address the increased GHG emissions inventory (as suggested separately by UoE and UoD) in this technical note and would welcome the Applicant reviewing this in the future.</p> <p>We find that using the Applicants figures and carrying out our own estimate of net benefit values, we obtain the following results:</p> <ul style="list-style-type: none"> <li>For fixed panels in Table 8.1 (deduce that this is for "fixed" panels based on ES Chapter 7 para 7.10.96) <ul style="list-style-type: none"> <li>Applicant: 253,839 tCO<sub>2</sub>e</li> <li>UoD: 255,850 tCO<sub>2</sub>e (using applicant figures)</li> </ul> </li> <li>The Applicant didn't mention Trackers in Table 8.1 but: <ul style="list-style-type: none"> <li>Applicant: 218,611 tCO<sub>2</sub>e (ES Ch7 7.10.96)</li> </ul> </li> </ul> | <b>ES Volume 1, Chapter 7: Climate Change (Rev 2) [EN010168/APP/6.1]</b> submitted at Deadline 5 has been updated where appropriate, following a proportional approach. The new Chapter includes updated figures and emission factors to incorporate technological advancements and evolution in the Scheme's design (including an example EPD for PV arrays). The Scheme's lifetime carbon savings are expected to be between 65,916 tCO <sub>2</sub> e and 266,507 tCO <sub>2</sub> e for tracked and fixed panels respectively. |

| Section Reference (as given in [REP3-132]) | Summary of Applicant Response (as given in [REP3-132]) | Comments from UoD in reply                                                                                                                                                                                                                        | Applicant's response provided at Deadline 5 |
|--------------------------------------------|--------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|
|                                            |                                                        | <ul style="list-style-type: none"> <li>UoD: 193,414 tCO<sub>2</sub>e (using the Applicant's figures)</li> </ul> <p>The results for fixed panels are not too dissimilar. There is a slight difference of 25,197 tCO<sub>2</sub>e for trackers.</p> |                                             |