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Your ref: DM/23/01868/FPA
Our ref: GAL00003
9 July 2024

FOR YOUR URGENT ATTENTION

Dear Sir or Madam,

Reconsideration of planning application DM/23/01868/FPA (Installation and operation of a Solar Farm together with all associated works, equipment and necessary infrastructure (Resubmission)) by Lightsource BP

1. We act on behalf of Ian Galloway, a local resident of Burnhope (supported by local residents of Hett), and write to request that Durham County Council reconsider planning application DM/23/01868/FPA as the Planning Committee's decision to approve was based on material errors of fact. These errors are threefold: error as to the Direct Current ("DC") capacity, error in the approach to overplanting, and error as to community benefits.

Error as to the DC capacity

2. The Council has made an error of fact (*E v Secretary of State for the Home Department [2004] EWCA Civ 49*) as to the DC capacity of the solar farm.

3. The applicant says the drawings show 135,420 panels. Our client's count is 135,360 taken from the Basic Layout and the amended Panel Elevations. The size of the panels

is shown on the elevations. These are exactly the same size as the Trina 685 Wp panels in the *Burnhope* planning application for a non-material amendment (DM/23/03147/NMA).

4. As the Court demonstrated in *R (Galloway) v Durham County Council [2024] EWHC 367 (Admin)* (paragraph 88), the DC can be calculated either from the particular type of panel shown, or by applying the output of reference panels to the total surface area of the panels. Applying that exercise to the present application:

   - Surface area: 2.384m × 1.303m = 3.106352 m2 per panel. Total surface area of panels is 420,662 m2
   - Trina 685 (from 135,420 x .50) 92.762MW
   - Draft EN-3 reference panel (225MW per m2) 420,862 x 0.225 = 94.693MW
   - Longi 540 (211W per m2) 420,862 x 0.221 = 93.010 MW

   Using the 135,360 panel figure and draft EN-3, the surface area is 420,476 m^2 and capacity is 94.607MW.

5. The applicant's supplementary statement (produced in March 2024) asserted that the proposed capacity was approximately 77 MWp (paragraph 7 of the supplementary statement). That statement was wrong. The Committee report was in error at paragraph 194 in adopting the 77 MWp figure. The DC capacity was therefore 20.39% to 22.99% higher than the Committee was informed. This may well exceed the 1.8 'over-planting' maximum asserted by the applicant.

6. If the Council or the applicant wish to defend the 77 MW figure, then they should demonstrate exactly how it has been calculated.

7. There was therefore a more substantial overcapacity than Committee members were aware of. That goes to the heart of how much land is to be taken up by panels.

The approach to overplanting

8. The Committee report failed to deal with the reasons for overplanting and the damaging and environmentally counterproductive consequences of the applicant's approach.

9. Solar panels generate DC. DC needs to be converted to Alternating Current ("AC") for transmission along the grid. Inverters are used to make that conversion (see EN-3, paragraph 2.10.50). Some energy is necessarily lost in that process. So, if the AC capacity of a solar farm is 50MW then the DC capacity will be higher.

10. The 2021 scheme was originally for a capacity of 60MW, amended to 62.75MW. No explanation has been given why the DC capacity is to be increased to 77MW (on the applicant's figures) or the actual capacity of between 92.7 and 94.7MW.

11. The DC to AC ratio of inverters can vary. The applicant says in its supplementary statement, 'Lightsource bp typically overplant by between 1.25-1.8, and this range is typical of solar farms in the UK and overseas' (paragraph 6). The applicant provides no evidence in support of this assertion.

12. In evidence to the DCO examination for the Sunnica Energy Farm, the proposer of that scheme said, 'A standard DC:AC ratio design in the UK market is between 1.25:1.00 to 1.40:1.00 DC:AC ratio' (8.114 Response to SNTS Deadline 7 Submissions in relation to Scheme Sizing and 'OverBadging', paragraph 1.2.3[1]. The decision on that scheme is awaited.

13. As a comparison, the Energy Savings Trust describes inverter efficiency for home solar panels as 93-96%, so a ratio of no more than 1:1.075:[2]. The need for higher (and so less efficient) ratios does not derive from the inverters themselves, but decisions by operators. Some now dated government guidance, Photovoltaics in Buildings Guide to the installation of PV systems[3], said 'inverter ratios from 1:1 to 1:0.8 are commonly applied in the UK' (so a DC:AC ratio of 1:1 to 1:1.25) (page 34).

14. Solar conditions do vary in other countries, but the US Energy Information Administration reported in 2018 that ratios were usually between 1:1.13 and 1:1.30, with a capacity weighted average of 1:1.25.[4]

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[1] 8.114 Response to SNTS Deadline 7 Submissions in relation to Scheme Sizing and 'OverBadging' (planninginspectorate.gov.uk)
[2] https://www.energysavingtrust.org.uk/sites/default/files/reports/Solar%20inverters.pdf
[3] https://files.bregroup.com/solar/Guide_to_the_installation_of_PV_systems_2nd_Edition.pdf
[4] https://www.eia.gov/todayinenergy/detail.php?id=35372

15. In conclusion:

(i) The applicant says it overplants by 1.25 to 1.8, so 62.5MW to 90MW. That has a substantial effect on the size of the solar farm and so on its planning impacts. Taking the applicant's figures of 4.2 acres per MW at Hett Moor Solar Farm (including intervening planting)[5], a 90MW solar farm would be 115 acres larger than a 62.5MW solar farm.

(ii) The range claimed by the applicant is not supported by any evidence. What evidence there is supports much lower ranges than the applicant's. The ratio put forward by the applicant (1:1.54 (77/49.9)) is much higher than published typical ratios.

(iii) The scheme proposed has a DC output of between 92.7 and 94.7MW. The figure claimed and adopted by the Committee report is wrong.

(iv) The planning application scheme ratio is therefore between 1:1.86 to 1:1.90. This is considerably above the range claimed by the applicant (1.25-1.8), the ratio claimed for this scheme (1.54) and the evidence from elsewhere (which is no higher than 1.4).

(v) The applicant has failed to provide any justification for the inverter ratio which they have adopted, and none is offered in the Committee report. Given the substantial effect on the size of the solar farm of different ratios, the particular ratio (and so land take) needs to be justified. That has not been done.

Community benefits

16. The scheme was put forward as providing a community fund as a benefit. This was not capable of being a material consideration: see R(Wright) v Forest of Dean Council [2019] UKSC 53, [2019] 1 W.L.R. 6562. The Committee report set out the benefit – on several occasions – and did not say it was immaterial. In the minuted discussion, there was reliance by members on the benefit (page 12 of the Minutes of the Planning Committee meeting on 8 May 2024).

[5] Paragraph 9 of the applicant's supplementary statement dated 8 March 2024

Further information

17. The following further information is requested:

- The Panel Elevation drawing was replaced by PNI_2P_25/6854_01 in October 2023. The original drawing PNI_2P_25/6854, which is referred to in the application documents, has been removed from the Council's website. Please provide a copy.

- Were any other drawings replaced when the Panel Elevation drawing was changed?

- Please also confirm whether the revised Detailed Landscape Proposals drawing P23-1024_02 Rev C, submitted in February 2024, is considered to be in accordance with the Basic Layout drawing and the Panel Elevations.

Yours faithfully,

Goodenough Ring Solicitors

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