PACE
PATHFINDER CLEAN ENERGY

# Agricultural Land, Food Security & Solar: Additional Supporting Information

Prepared by Pathfinder Clean Energy (PACE)

February 2025

# Agricultural Land, Food Security & Solar: Additional Supporting Information

As the UK transitions toward a zero-carbon economy, the relationship between the roll-out of renewable energy developments and the nation's food security has come under increasing scrutiny. Maintaining sufficient levels of food production and achieving our legally enshrined net-zero targets are both key national priorities and have been characterised by some as competing or conflicting interests. This note addresses some common misconceptions relating to the topic, and seeks to:

1) Set out the relevant planning policy relating to the use of agricultural land for renewable energy development; and
2) Provide evidence that solar farms do not represent a threat to the nation's food security.

## The proposed development

The note has been prepared to support the planning applications for a temporary ground mounted solar photovoltaic (PV) farm with battery storage, substation and associated works at Land at Treading Field, Treading Drain, Tydd St. Giles, Cambridgeshire (application references: F/YR24/0457/F & H19-0329-24).

The applications seek permission to develop a solar farm and battery storage which would generate 49.9MW of clean, renewable energy, equivalent to the electricity needed to power 22,388 homes and offset over 16,200 tonnes of CO2 per year.

The existing site comprises a series of agricultural fields. The application is supported by an Agricultural Land Statement, which demonstrates that the agricultural land comprises of the following grades:

- Grade 2 (11%) - Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown, but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1;

- Subgrade 3a (87%) - Land capable of consistently producing moderate to high yields of narrow range of arable crops, especially cereals, or moderate yields of a wide range of crops including cereals, grass, oilseed rape, potatoes, sugar beet and the less demanding horticultural crops.

It is noted that both Grade 2 and Grade 3a land qualify as *Best and Most Versatile (BMV)* land, albeit the grades are lower than the prevailing land type in the surrounding area, which mainly consists of Grade 1 (the highest grade) and Grade 2 land.

Considering the development seeks to temporarily utilise BMV land for non-agricultural purposes, we consider the relevant policies relating to the development of renewable energy projects and the use of agricultural land below.

## The Policy Context

Decision makers are informed by national policy contained in the NPPF (December 2024) and National Policy Statements EN-1 and EN-3 (January 2024) when making decisions relating to renewable energy developments on agricultural land.

### *The National Planning Policy Framework*

The National Planning Policy Framework (December 2024) offers clear and unambiguous support for renewable energy developments, and stresses the need for all levels of the planning system to support the shift to a carbon-free economy, in line with nationally enshrined targets. Paragraph 161 states that "*the planning system should support the transition to net zero by 2050 and take full account of all climate impacts … and support renewable and low carbon energy and associated infrastructure.*"

Paragraph 168 requires "*significant weight*" be given to the benefits associated with renewable and low carbon energy generation by decision-makers.

In the context of the Framework's definitive support for renewables developments, the weight that should be given to the use of best and most versatile land must be considered. It is recognised that Paragraph 187 requires that *"the economic and other benefits of the best and most versatile agricultural land should be recognised."* While this makes it clear that the use of BMV is a material consideration for planning purposes, it is equally evident that the Framework does not seek to prohibit the use of such land for non-agricultural purposes, nor does it comment on the how decision-makers should weigh any loss (temporary or otherwise) of BMV.

Paragraph 188 and footnote 65 are also relevant to the use of agricultural land, however it should be noted that they specifically pertain to local plan making, and do not seek to give direction to decision-makers with respect to applications relating to the use of agricultural land. They require local plans to allocate land with the least environmental effect, where consistent with other policies and Framework. Footnote 65 states that *"where significant development of agricultural land is demonstrated to be necessary, areas of poorer quality land should be preferred to those of a higher quality"*. Notably, the December 2024 update to the NPPF amended footnote 65, removing the

requirement for the availability of land for food production to be considered alongside other policies in the Framework.

With reference to footnote 65, we note that the Agricultural Land Statement submitted in support of the application demonstrates that although the site itself is BMV (comprising a mix of Grade 2 and Grade 3a), when compared to the prevailing land grade of the wider area (which is primarily Grade 1 & Grade 2), the proposed development has effectively directed development toward areas of poorer quality land, in accordance with footnote 65.

Taking the relevant paragraphs into consideration, the Framework does not contain any policies which restrict or prohibit renewable developments from coming forward BMV. In the context of the clear and significant weight that the Framework affords to renewable energy developments, the overwhelming benefits of the proposed development would outweigh the relatively minor and temporary economic impacts arising from the use of BMV for non-agricultural purposes.

*National Policy Statements*

The Overarching National Policy Statement for Energy (EN-1) (January 2024) is a material consideration for all developments relating to power generation, and provides additional guidance pertaining to the use of agricultural land.

Paragraph 5.11.12 states that *"applicants should seek to minimise impacts on the best and most versatile agricultural land identified as land in Grades 1, 2 and 3a of the Agricultural Land Classification and preferably use land in areas of poorer quality (Grades 3b, 4 and 5).* We note, however, that similar to the NPPF, this paragraph does not prohibit the use of higher land grades for energy developments, it simply states a preference for the use of lower-quality land. It is also relevant to highlight that NPS EN-1 relates to all energy developments, and so where it refers to impacts, it is likely to be in reference to more permanent and intrusive forms of development, which compared to solar developments are likely to have significantly more impact on land.

The National Policy Statement for Renewable Energy Infrastructure (EN-3) (January 2024) sets out the governments strategy with respect to renewable energy infrastructure, and is a material consideration for planning applications. EN-3 sets out at 1.1.1 that *"there is an urgent need for new electricity generating capacity to meet our energy objectives"*. Paragraph 1.1.2 notes that *"electricity generation from renewable sources is an essential element of the transition to net zero and meeting our statutory targets"*.

Paragraph 2.10.28 is set under the subtitle of *"factors influencing site selection and design"* and provides crucial direction relevant to renewable energy developments on agricultural land. It advises that:

> *"while land type* ***should not be a predominating factor in determining the suitability of the site's location****, applicants should, where possible use non-agricultural land. Where the use of agricultural land has been shown to be necessary, poorer quality land should be preferred to higher quality land"*

In the context of paragraph 2.10.28, it is clear that the weight that should be afforded to land grade by decision makers is limited. As set out above, considering the wider context of the land grades of the area, the development has been directed toward poorer quality land (albeit land that still qualifies as BMV).

Therefore, having consideration of the clear support across all levels of policy for the renewable development, it is evident that the use of agricultural in respect to the proposed development, is acceptable.

### Addressing common misconceptions

The following points are provided to clarify the relationship between solar PV and farmland in the UK, addressing common misconceptions and highlighting the realities of land use and food security. They should be considered in the context of the national policy position set out above.

**1. There is no identified need for BMV land to be used for food production.**

a. *Gov Food Strategy* states the UK does not aim to significantly increase food production, despite the potential to do so and states 'near self-sufficiency in wheat, most meat, eggs and some vegetables, but not in soft fruit although the trend is favourable'.
b. *Gov UK Food Security Report 2021* states that 'we produce about 75% of what we consume' and does not seek to increase food production. The shortfall is not because we can't produce more, but rather it's down to consumer choice to eat food out of season, or to import more cheaply. The report highlights aims that ensure "farmers will broadly maintain domestic production at current levels as we deliver our climate and environmental goals."
c. Landowners have the freedom to use their land as they choose, with no obligation to dedicate it to food production. They may farm intensively or un-intensively, adopt organic or conventional methods, or cultivate non-food or energy crops. Their land can be used for grazing horses, growing hay for livestock, enhancing biodiversity, or rewilding efforts. Some may choose to plant woodlands, while others may use their land seasonally for activities such as camping. Ultimately, land use decisions are entirely at the discretion of the owner, reflecting their priorities, economic interests, and environmental goals.

2. **There is currently no indication of a food security risk in the UK, and climate change remains the greatest long-term sustaining agricultural productivity.**

    a. The Government's Land Use Consultation (January 2025) states that *based on historical trends of productivity improvement, and supported by new and emerging innovations, the impact of land use changes [including solar developments] on domestic food production will be offset by productivity improvements.*
    b. Defra's Press Release on 6th Dec 2022 states that "the UK has a large and highly resilient food supply chain. Our high degree of food security is built on supply from diverse sources: strong domestic production as well as imports through stable trade routes".
    c. The Gov's Food Strategy and Food Security reports highlight the risk of climate change to the UK's agricultural land, and how the UK's net zero strategy (of which solar-PV is a key proponent) is the key mitigation strategy: "through [Gov's] net zero strategy, we are committed to reducing agricultural greenhouse gas emissions and mitigating climate change."
    d. Ed Miliband, Secretary of State for Energy and Climate Change was quoted as saying "The biggest threat to nature and food security, and to our rural communities, is not solar panels or onshore wind – it is the climate crisis which threatens our best farmland, food production and the livelihoods of farmers."

3. **The UK has an abundance of agricultural land, and the amount allocated to solar PV is negligible in comparison to other uses that contribute less to national priorities like energy security and sustainability.**

    a. Based on *Agricultural Land Use in England at 1 June 2024, Defra, 26th September 2024*, current land use is as follows 8.7m hectares of Utilised Agricultural Area (UAA), of which 3.7m hectares (42%) is estimated to be BMV (according to *Technical Information Note 049, Natural England, Appendix KCC2*) Current usage includes 581,000 hectares is currently uncropped land, including 276,000 hectares of bare fallow land.

    In comparison, current solar land use consists of:

        1. 3,600 hectares (0.04% of UAA) solar + grazing
        2. 3,700 hectares (0.04% of UAA) solar with no agricultural production

    ii. Future solar land use

        1. The WMS (15th May 2024) sets out that "even in the most ambitious scenarios" meeting the renewable targets through solar "would still occupy less than 1% of the UK's agricultural land".
        2. 87,000 hectares of total solar land use if 1% figure is delivered

3. 37,000 hectares of BMV land used by new solar assuming straight statistical application on BMV and non-BMV land.

4. **Soil degradation from intensive agricultural use poses a risk to future crop yields. Installing ground-mounted solar PV allows the soil to recover, promoting regeneration and delivering long-term benefits for agricultural productivity.**

    a. Commercial arable farming often involves tilling, which disrupts soil structure by breaking down aggregates, reducing water infiltration rates, and accelerating the decomposition of organic matter. This process strips away the biotic glue that binds micro and macro aggregates, causing soil particles to compact and reduce porosity. As a result, anaerobic conditions develop, altering soil biota, increasing pathogen presence, and leading to nitrogen loss within the system.
    b. Pre-industrial revolution, some farms showed 7+% organic matter, by the 1990s, this had reduced to sub 2%.
    c. Fertilisers and herbicides also destroy soil structure. *The Browning of the Green Revolution* stated, "Logically, the soil should gain nitrogen if fertilizer inputs exceed grain removal." However, research revealed that despite the application of synthetic nitrogen, there was still a net decline of more than 1,600 pounds per acre in total soil nitrogen.
    d. A century ago, most farms maintained a diverse mix of livestock and arable production. Grazing animals played a crucial role in soil health by selectively feeding on plants, prompting them to release root exudates that attracted beneficial soil biology and supplied the nutrients needed for regrowth. This process also stimulated photosynthesis, increasing carbon sequestration in the soil. As carbon levels rose, soil structure improved, creating optimal conditions for biological nitrogen fixation and enhancing long-term soil fertility. With modern farming practices becoming less diverse, this natural process has been disrupted, further degrading soil conditions and reducing long-term fertility.

5. **Food security relies on the long-term viability of the farming industry, and solar-PV provides a long-term diverse revenue stream for farmers.**

    a. Solar PV provides a vital revenue stream that strengthens financial resilience, ensuring a sustainable future for farmers - safeguarding UK food production.

6. **Solar-PV and agriculture can coexist.**

    a. Solar PV is uniquely compatible with agriculture when compared with other energy generation technologies because it allows farmland to generate clean energy while still supporting grazing, ensuring dual land use and additional income for farmers.

7. **The Biodiversity Net Gain (BNG) benefits of solar PV are often overlooked, yet they play a crucial role in supporting the UK farming industry.**

    a. By improving soil health, restoring natural habitats, and enhancing pollinator populations, BNG initiatives help sustain agricultural productivity while providing farmers with a diversified and stable income. This dual benefit strengthens the resilience of UK farming, ensuring both environmental and economic sustainability.