

Ten good reasons for NOT approving a solar farm AND An application of the NPPF Planning Regulations

1. As a general rule, it takes about 200 acres (80 hectares) to generate the same annual electricity energy through a solar farm as just **ONE OFFSHORE** wind turbine. This represents a grossly inefficient use of precious land, whatever its quality. But it does mean that we could replace a proposed solar farm by using wind power located in the North Sea and still claim the offsetting of existing carbon rich electricity generation, identified as a benefit by Low Carbon/Pegasus, but without suffering the inefficiencies of solar farms described in this paper. The ready availability of surplus North Sea wind power will be introduced and explained.
2. Pelham Spring Solar Farm will use 196 acres of fertile farmland thereby reducing the UK's valuable food production capacity for forty years and exacerbating food insecurity (now also critically affected by the ongoing war in Ukraine). This issue alone is sufficient reason to ban solar farms automatically on fertile farmland. However, Low Carbon/Pegasus insists this farm should be located close to Brent Pelham sub-station without any thorough searches for alternatives. In justifying their choice of site Low Carbon/Pegasus offer only "cheap connection to the grid" which may be a cost benefit to them but gives nothing to electricity consumers.
3. Solar farms generate 'ragged' electricity because of the random incidence of clouds or overcast skies which restrict electricity generation from the panels. In addition the panels only work during daylight whereas demand for electricity is continuous for 24 hours. Hence, there is a necessity for expensive short term battery storage to concentrate the electricity before it can be input to one of the grids. No consumers would tolerate low voltage/dim lights while they waited for the sun to start shining.
4. With hardly any electricity generated during the winter months, the average energy produced by a solar farm is only 11% of the installed capacity of the panels. Another gross inefficiency. In comparison, a North Sea wind turbine generates over 40% of its rated output on average throughout the year. Although this proposal is for a solar energy farm, the comparison with North Sea wind power is very relevant because wind power is landed at Sizewell in Suffolk and would be readily available for transmission to Brent Pelham sub-station where it could cover any local supply deficiencies which might occur around this location if the solar farm is not to be authorised.
5. Solar farms produce their maximum electricity in the summer when demand for electricity is at its lowest, leading to high energy wastage because unused electricity cannot be indefinitely stored like gas - it leaks away. Wind turbines produce their maximum electricity in mid winter when demand for electricity is at its peak - so, much less wastage with wind power.
6. This Solar farm will have only just one connection with the local low voltage distribution system and, therefore, zero network connectivity with the National Grid. In contrast, North Sea offshore wind turbines hook directly into the National Grid through

onshore sub-stations, mostly, at this stage, located on the Suffolk coast. This enhances the UK's international high voltage security connectivity with Norway, France, Belgium, Denmark, Ireland, the Netherlands and Germany. In addition, wind farms in the North Sea are connected North and South by a high voltage cable to instantly balance UK supply and demand in the event of particularly serious outages.

7. The Government has already indicated strong support for offshore wind, and its lack of support for solar farms by offering £225.0m of incentives for offshore wind compared with just £3.3m for solar at the recent Contract for Difference (CFD) auction. This indicates that Government is 7 times more supportive in using wind power to meet zero carbon by 2050, rather than inefficient solar power. As a result of this clear government preference, there is now no need for a "balance" of renewables to be installed (as was previously supposed). In addition, it would be impossible for Low Carbon/Pegasus to rely on the projections from NIC because their report was published as long ago as March 2020 and particularly over-egged the solar expectation, in ignorance of the Government's recognition of the superiority of North Sea wind. Further, Low Carbon/Pegasus have misread a statement in the "British Energy Security strategy published April 7 2022 that Government is targeting a five-fold increase in solar - **THIS REFERS TO ROOF MOUNTED AND NOT SOLAR FARMS.**

8. Wind power expansion has been constrained so far by the lack of shallows in the North Sea. For example, the recently announced SeaGreen project, just off the Scottish coast, had to set a world record for the length of the legs supporting their new wind turbines. But, now that **floating** wind turbines have been introduced, this opens up the whole of the North Sea for future wind turbine investment. In comparison, the development of solar farms is seriously restricted by their already profligate use of our **scarce** countryside.

9. It should be emphasised that being "renewable" does not mean "zero" carbon. Certainly the generation of electricity by wind turbines or solar power is carbon free, but the manufacturing and installation of such farms can incur much CO2 release. This can be measured by a statistic called Embodied Carbon Footprint (ECF) defined by the weight of carbon dioxide released during the introduction of these farms, and then divided by the number of kwhs of electricity expected to be generated during the lifetime of the installation. Presently, this is about 50 gms CO2 per kwh for solar and 7.5 gms CO2 per kwh for wind turbines. If the reader thinks that anything which can be measured in gms must be irrelevant, they should look at the following calculations for solar farms.

*The total weight of CO2 by the introduction of a solar farm is
50 gms multiplied by the estimated kwhs in the farm's lifetime
Equals 50 x 11% efficiency x 50,000 kwhs installed capacity x 40 years lifetime
Equals 50 x 0.11 x 50,000 x 24 hours x 365 days x 40 years / 1,000,000 for tonnes
Approximately equals 96,000 metric tonnes of CO2*

Now, 96,000 tonnes of CO2 is a massive amount of carbon and way off the scale for a zero carbon target. The next paragraph discusses how this should be avoided.

10. The National Grid has recently announced that there are so many wind turbines planned for the North Sea that East Anglia will be exporting energy to the rest of the UK sometime soon. So, there is an expectation of surplus efficient wind power being networked westward from Suffolk by the grid, and available, en passant, to the Brent Pelham sub station for feeding the local network. So, there is **NO NEED TO APPROVE** a Solar Farm at Brent Pelham because this can be totally replaced by wind turbines located in the North Sea, thereby improving efficiency of local renewables and reducing the release of CO2 from local carbon emissions from 96,000 tonnes to 15,000 tonnes (as calculated using 7.5 gms CO2 per kwhs).

CONCLUSIONS

IN ESSENCE, THERE IS NO JUSTIFIABLE REASON FOR CONSTRUCTING SOLAR FARMS ON FERTILE FARM LAND BECAUSE FOOD SECURITY MUST REMAIN PARAMOUNT, FOR EVER.

SOLAR FARM ENERGY IS HIGHLY INEFFICIENT AND CAN BE REPLACED BY THE SURPLUS WIND ENERGY ANTICIPATED FROM THE NORTH SEA. IN PARTICULAR SOLAR FARMS SHOULD NOT BE APPROVED IN EAST ANGLIA AT ALL BECAUSE OF THE SURPLUS WINDPOWER WHICH WILL BE AVAILABLE.

OFFSHORE WIND POWER IS NOW RECOGNISED BY GOVERNMENT AS THE FUTURE FOR LARGE SCALE RENEWABLES IN THE UK, BUT SOLAR PANELS SHOULD ALSO BE ENCOURAGED FOR MILLIONS OF EXISTING AND FUTURE ROOFS AND WASTELAND - PARTICULARLY WHEN FLEXIBLE 'THIN FILM' TECHNOLOGY IS PERFECTED FOR WRAPPING AROUND BUILDINGS.

APPENDIX

NATIONAL PLANNING POLICY FRAMEWORK (NPPF) implications

When there is NO up to date development plan available (as in Uttlesford) the NPPF suggests the following processes to test the “presumption in favour of sustainable development” (NPPF paragraph 11, sub paragraph (d)).

Alternative 1 (as specified by the NPPF)

Permission should be granted for any proposal unless the application of policies that protect areas of particular importance provide a clear reason for refusing the proposal.

Interpretation specific to Solar Farms on BMV land

There is a clear need to protect fertile farm land in order to maximise home food production unless something better could be done with this land - but there isn't anything better because there will be a surplus of efficient wind power in East Anglia so large scale inefficient solar energy will not be needed in this region.

OUTCOME 1: LEGITIMATELY REJECT SOLAR FARM PROPOSAL

Alternative 2 (also as specified by the NPPF)

Permission should be granted unless any adverse impacts of refusal would significantly and demonstrably outweigh the benefits, when assessed against the policies taken as a whole.

Interpretation specific to Solar Farm on BMV farmland.

If this proposal were rejected there would be no adverse impacts because there will be a surplus of efficient wind power available in East Anglia to provide the electricity which the solar farm was intended to supply. The benefits of not having any solar farms would mean that, first, fertile farmland for our necessary food production would be retained and second, the countryside in the UK would not be unnecessarily industrialised and desecrated.

OUTCOME 2 : LEGITIMATELY REJECT SOLAR FARM PROPOSAL

Peter Patrick
March 6th 2023