**Dear XXXX**

**11 good reasons why solar power stations should not be considered for planning approval, especially if they are located on grade 1-3 or BMV farmland.**

I am writing to object to the (*local council/UK government’s*) support for placing solar panels on farm land. Here are the reasons:

1. **Solar vs wind power -** it takes around 200 acres of farm land to generate the same electricity by solar panels as **ONE** North Sea wind turbine. Placing solar panels on farmland is a grossly inefficient use of precious food producing land whatever the quality of the land, but especially if it’s arable land.
2. J**eopardising UK food security** - the UK has a limited amount of land with a large population. One local example of a giant ground-mounted solar energy scheme, South Kent Energy Park, wants to convert around 1500 acres of grade 1 and 2 arable land to solar energy generation. Only around 20% of our country’s land produces crops. Converting food producing land for solar power generation will reduce the UK’s valuable food producing capacity and exacerbate food insecurity at a time of geopolitical instability which is currently affecting Europe particularly. This issue alone should be sufficient to ban solar schemes on any land that produces food.
3. **Growing number of mouths to feed** - by 2035, there will be 73 million mouths to feed in the UK. Food production and food self-sufficiency has been falling across all agricultural sectors in recent decades. Food policy expert, Tim Lang, predicts increased food system vulnerabilities due to climate change, geopolitical instability, extreme weather events, and fragile supply chains in the same period. Converting food producing land to energy producing land risks creating a food crisis on top of the climate crisis.
4. **Mis/Dis-information** - it is often claimed by the energy sector and government departments that ground-mounted solar energy will only take up 0.1% of all UK land. The total acreage cover for all NSIP projects approved or in the pipeline to date totals around 100,500 acres, which is around 0.2% of all UK land. Existing projects take up around 0.1% of UK land. Adding these together brings the figure in line with the government’s Clean Power 2030 plans to scale up solar, which would bring the figure up to 0.3% at least - or around 0.5% of the land used for farming. However, not all UK land is equal. Despite previous NPPFs that have guided solar scheme developers away from BMV land for ground-mounted solar, analysis by SolarQ has found that in reality developers are disproportionately targeting grade 1-3 BMV land for solar schemes, while largely avoiding grade 4-5 land. So, while it may not sound like it’s a problem to site large solar schemes on less than 1% of the UK’s land, if it is mainly targeting BMV farmland, which amounts to around 40% of UK land, with less than 20% top grade 1 and 2 land, then this is a much bigger problem for the country’s food resilience and security than is presented by solar energy companies. A large proportion of BMV land is also at risk of flooding or degradation due to climate change which will also exacerbate the situation. It would seem wiser to protect BMV land by ensuring it can adapt to the effects of climate change than to cover it over with solar panels, which in turn could exacerbate soil compaction and flooding, rendering it at a lower grade in 40 years time than it started.

1. **‘Ragged’ electricity** - Solar farms generate ‘ragged’ electricity because of the random incidence of clouds or overcast skies which restrict electricity generation. The World Bank report, **[Solar PV Power potential by country](https://www.worldbank.org/en/topic/energy/publication/solar-photovoltaic-power-potential-by-country)**, ranks the UK **239th out of 240** countries with the highest to lowest solar potential, followed only by Ireland. Solar panels in the UK deliver on average maximum power for 2.5hrs a day, compared to 5.9hrs for onshore wind and c 9.5 hrs for offshore wind. Solar panels deliver more energy in summer when the UK needs it least, while wind delivers more power in winter when the UK needs it most. Solar panels also rely on expensive battery storage, which has a limited storage duration. Lithium-ion batteries also have a propensity to catch fire risking thermal runaway and pollution by toxic gases and contaminated firewater.
2. **Solar panel inefficiency in the UK** - The average energy produced by a solar panel in the UK is only 10.6% of its installed capacity, in comparison with a wind turbine which generates over 40% if its rated output throughout the year. In 2023, the total UK installed capacity (MWp) of wind was **less than twice** that of solar, but wind produced almost **six times (x5.9)** more electricity than solar. This is another gross inefficiency.
3. **Not so clean electricity** - Being renewable does not mean being net zero carbon. The embedded carbon footprint (ECF) of a solar panel is **50gCO2/kWh** generated compared to **7.5gCO2/kWh** for a wind turbine. 50g is much further away from net zero than 7.5 - another argument in favour of wind and against solar as a strategic energy solution for UK energy security and mitigating the climate crisis. The UK cannot legitimately claim to be aiming for Net Zero unless it factors in embedded carbon footprint (or Total carbon lifecycle) of technologies and other solutions. Offshoring carbon emissions is simply virtue signalling as a nation and does nothing for the climate emergency.
4. **Ethical and moral issues** - It is known that China - the largest manufacturer of solar panels uses forced labour in some of its solar pane factories in western China. Unlike the EU and many other countries, the UK does not have any restrictions on solar panel sources. With China being accused of overproducing, and with our lack of regulation around solar panel sourcing, our rapid Net Zero ambition means the UK is likely to be the target of this overproduction.
5. **2030 targets** **exceeded already** - according to SolarQ’s analysis, the UK has already over exceeded its 2030 solar energy target of 49GW. We already have 5GW rooftop solar, 35GW of ground-mounted solar below 50MW/scheme, and 20GW of NSIP solar already going through the Planning Inspectorate.
6. **More reliable and efficient alternatives** - Wind energy is a far more efficient energy source than solar for the UK as demonstrated above. However, small modular reactor nuclear energy also has many advantages over solar:
	* it provides a stable, low carbon baseload power 24/7 regardless of the weather, and can contribute to grid stability
	* it 100 times more space efficient than solar, requiring significantly less space to generate the same amount of energy as solar

**11. Returning the land to farming in 40-60 years time** - there have been no examples of land being returned to farming after being converted to solar power generation. Construction of large ground-mounted solar schemes requires large amounts of concrete and stone to stabilise the land and secure the 2-3 meter pilings for the solar panel frames. Some experts believe it may be more expensive to decommission a ground-mounted solar energy site and return the land to farming than it was to build the solar power station in the first place. Until more is understood about the costs of decommissioning and returning land to agriculture, a circumspect and apprehensive approach should be taken to ground-mounted solar schemes. In the meantime, rooftop and brownfield solar should be preferred and prioritised in the first instance, just as countries such as Italy are doing, which also has limited land resources like the UK.