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Ground-mounted solar power: 8 uncomfortable truths

More than 88,000 acres of countryside – much of it fertile farmland – are being targeted for conversion to solar power production. Individual 'mega' schemes cover thousands of acres.

1. **Solar power is not a 'silver bullet' renewable**
   Ground-mounted solar is a hugely inefficient use of land. A 140-acre solar site is capable of supplying electricity to about 9,000 homes. A single wind turbine in the North Sea has the capacity to power around 16,000 homes. In England, the maximum solar output capacity is 11%, and output drops over 80% in the winter. Solar panel manufacturing is not carbon neutral and China, the biggest producer, is responsible for 29% of global greenhouse gas emissions.

2. **Solar panels don't belong on agricultural land: there are smarter options**
   Solar should be on residential, commercial and industrial rooftops, brownfield sites, transport corridors and car park 'canopies'. Adding panels to roofs and car parks means we make dual use of land. If we put panels on just a quarter of our 617,000 acres of south-facing commercial roofspace we could generate 25GW of electricity a year – almost half the current target. Countries across Europe are already unlocking the potential of existing space. In 2023 alone, Germany installed 14GW of new solar capacity, nearly 70% on rooftops. Italy has banned solar on farmland, Poland is delivering process reforms to speed up rooftop solar, and in France, all car parks with more than 80 spaces now have to include a solar installation.

3. **We are witnessing a developer-led 'sunrush'**
   Opportunistic developers are driving the rush to cover our countryside with ground-mounted solar. Billions of pounds worth of profit is the attraction, not Net Zero targets. Some developers are motivated purely by short-term profit – most notably, the overseas group alleged to have pushed a leading water utility to the brink of bankruptcy. High volumes of foreign investment capital are flowing into the UK renewables infrastructure, raising critical questions about provenance and control. There are issues around product supply chains – one recently consented mega plant is owned by a company sanctioned by the US government for buying so-called 'blood panels' built using Chinese slave labour. And developers will reap the rewards from different pricing structures – consumers will lose out. The government's Contracts for Difference scheme, designed to incentivise investment, risks locking in higher long-term UK energy prices. Energy storage via battery systems offers scheme owners highly profitable arbitrage opportunities.

4. **Battery energy storage can cause fires, explosions and toxic chemical releases**
   The industry's solution to the inefficiencies of solar is to build banks of shipping container-sized lithium-ion battery stores. These giant batteries, only capable of storing energy for a few hours, are being sited right near rural towns and villages, despite well documented fire and explosion

risks and inadequate safety regulation to protect the people living near or working on these sites. The regulations have simply not caught up with the technology at this scale. Neither emergency responders nor safety bodies are yet prepared to deal with them properly. We are seeing serious incidents reported from around the world, and there has already been a major fire and explosion at a new battery facility in a residential area in Liverpool.

5. **Technology is moving fast: we risk a 'rustbelt' legacy**
   The UK is rushing into a colossal commitment to mass-scale solar schemes that are already at risk of becoming obsolete as we see innovative new energy concepts coming to market. This potentially leaves a legacy of thousands of acres of redundant solar panels in 'rustbelts' that will need to be dismantled and disposed of in the decades to come. Developers do not include the carbon costs of disposal in their sales pitches. There is no developed industry for panel recycling at scale. There is still no plan to deal with thousands of tonnes of panel waste.

6. **Food security is increasingly under threat**
   We already import 40% of our food. Well over 88,000 acres of farmland are currently targeted for new ground-mounted solar schemes – and there is much more already built and in the planning pipeline. This is on top of the estimated 500,000 acres of farmland currently used for eco schemes under the Sustainable Farming Initiative. Some of the high-quality farmland set to switch to power generation provides specific conditions for certain crops, so taking it out of production means yields of these crops will inevitably fall. All of this is not just a threat to our capacity to produce home-grown food – it puts tenant farmers and agricultural workers' livelihoods at risk and will eventually erode generational farming knowhow.

7. **Mega schemes would change our countryside beyond recognition**
   We have all seen the manageable 49MW solar schemes typically covering around 250 acres dotted across our countryside. But now numerous mega solar plant proposals target thousands of acres of land. One, near Newark, is a massive 6,920 acres – nearly seven Clarkson's Farms. They are on an unprecedented scale, on farmland, and right next to where people live. Hundreds of thousands of ordinary people up and down the country are concerned about the huge wave of solar power plant proposals now being imposed on the countryside around their villages and towns. They know that these over-scaled industrial sites would overwhelm our countryside and ruin our distinctive landscapes.

8. **It does not have to be this way**
   We will look back in 10 years' time and ask, why? Why did we rush to industrialise farmland when there were better options? Why did we decide to ignore the science, serious risks and ground-breaking new tech emerging? And why did we choose to become an outlier in Europe when we took the 'fields first' route on solar? A secure green future must be built on the foundations of sound long-term decisions, not driven by short-term thinking and developers' profit margins. Decision-makers need to recognise now that there are better alternatives and that a safer, more future-proof infrastructure is within reach. With careful policy development and implementation, effective monitoring and regulation, and meaningful consultation with communities, we could see high-quality, considered solar schemes as part of the renewables mix, in the right places and at the right scale. Community support for the 'right schemes' would facilitate a faster pace of rollout too.

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