

I live in the rural community [REDACTED] in the small Lincolnshire County District of West Lindsey, which is currently living under the constant threat of being turned into one of the largest industrialized areas in the world by 5 large solar projects, which if approved, would occupy an area of 12,500 acres (20 square miles of glass panels 4.5 metres high) surrounding us completely, thereby ruining the picturesque agricultural, pastoral, and historical landscape of the Trent Plain.

It is almost impossible to separate the harmful effects of each of the solar projects because they combine to despoil the whole area around 30 villages and for this reason they should be considered together, as a complete entity by the Planning Inspectorate, rather than individually.

Climate scientists have predicted we will lose hundreds of square miles of arable land in Lincolnshire around the Wash and low-lying areas of the East Coast due to rising sea levels within the next decade, despite the UK's efforts to reduce its release of CO₂, which comprise only 1% of total global CO₂ emissions.

The fertile farmland in this part of Lincolnshire has fed the nation since Roman times and the area is often referred to as the 'Breadbasket of Britain'.

Events in Ukraine have recently demonstrated the UK's vulnerability to supplies of imported grain and the effect on cereal prices around the world.

It is worth remembering that during WWII, when the population of the UK was almost 30% less than it is today and every available acre and square foot of land was under the plough or the spade, food rationing was introduced due to the action of German U-boats.

Although the developer claims the Cottam Solar Project to have a 'potential' output of 600MW, the average annual load factor at northern latitudes is a maximum of 10% and will therefore deliver a maximum annual average of only 60MW. Much is made by the developer of reducing the UK's CO₂ emissions, yet the power generated will not reduce the cost of electricity to the consumer, yet solar farms will receive payments when they are shut down, increasing the cost to the consumer.

The most beneficial siting of solar panels is on the roofs of domestic, commercial, and industrial buildings, where the electrical power generated is supplied and consumed at the point of use, reducing demand on the national grid, and benefitting the consumer directly.

The economic viability of Cottam SP depends almost entirely on the use of its large battery energy storage system (BESS) of 600MW, which has a much greater capacity than its annual average load factor can supply, therefore making the National Grid to be the main user of the battery capacity to store electrical energy generated elsewhere.

This brings into question the developer's justification for not siting the BESS at Cottam Power Station and consideration by the Planning Inspectorate to require a separate planning application from the National Grid, as the main user.

Battery energy storage systems of this size carry the serious risk of chemical fire due to exothermic melt down, explosion, release of toxic gases, water & ground contamination, which cannot easily be controlled and contained by emergency services operating in a rural area with poor access, inadequate cooling water supply and limited resources.

Cottam PS is sited well away from populated areas, is supervised, contained, controlled, already has adequate water supplies with good road access for Nottinghamshire Fire Brigades, which have successfully attended serious fires and major incidents at this location in the past, when the power station was operational.

Fire Officers have already expressed concerns about the difficulty of controlling the exothermic chemical fires resulting from large BESS installations and estimate they would require 1.2 million gallons of water per day just to cool and contain the fires, whilst working in areas surrounded by the release of toxic gas.

If these BESS installations are to be sited in the open countryside, where would the Fire Brigades obtain this huge quantity of cooling water?

When Cottam PS was operational, its daily consumption of town main water was well over 1.2 million gallons per day and although decommissioned, it still retains its industrial sized water mains from Anglian Water and Severn Trent, a subterranean water supply from a bore hole, together with an almost inexhaustible supply of river water from the Trent.

Why then are the BESS installations not being installed at Cottam Power Station?

Cottam Solar Project's 600 MW (with only 10% annual average load factor) connection to the 400kv National Grid network currently being considered would be far better utilised by receiving the output from several Small Modular Nuclear Reactors (SMR's) sited on the decommissioned Cottam Power Station site, which would provide a continuous, uninterruptible source of zero carbon electricity, not intrude on the landscape, nor take up thousands of acres of productive farmland.

Cottam is uniquely suitable for SMR's by its remote location, cooling water supplies and grid connections and should be considered as part of the long-term national infrastructure strategy, which could be compromised by allocating scarce grid connection capacity to solar power schemes.

The visual impact of 3,137 acres (5 square miles) of 4.5-metre-high solar arrays cannot be underestimated, trivialised, or ignored and will blight the landscape around the Cottam Solar Project for the next 60 years.

Covering this huge area with inclined 4.5-metre-high glass panels will also prevent the natural mitigation of surface water runoff by the soil during periods of heavy rain and storm conditions.

Defra's Sustainable Drainage System (SuDS) Directive requires all constructions which have impermeable surface areas not having infiltration, to be mitigated by the provision of one cubic metre storage capacity for every 50 square metres of impermeable surface area.

Yet, despite Defra's concerns to prevent local flooding from impervious surfaces, there appears to be no similar requirement for the Cottam SP developer to prevent storm water running off an estimated 4.5 million square metres of glass into the drains and ditches which deliver into the River Till, along with the storm water from another 3 projects, all of which are sited on the River Till catchment area.

Using the same formula adopted by Defra's SUDS Directive for rainwater infiltration, the Cottam Solar developer would have to provide a storage capacity of 90,000 cubic metres to contain the surface water run-off from its solar arrays and a mitigation area of 37 acres.

The developer has provided very limited capacity, or facility for rainwater mitigation and has given the flooding risks scant consideration. Flood Risk Assessments in the Environmental Statements appear to be more concerned with the protection

of the solar installations, rather than the protection of the surrounding countryside.

Land drainage from the Cottam Solar Project along with that from Gate Burton, West Burton and Tillbridge Solar 'Parks' all drain into the catchment area of the River Till, which is pumped up into the Fosdyke Navigation Canal at Odder to the west of Saxilby and then flows into the Brayford Pool in the centre of Lincoln.

Under storm conditions, when the water level in the river Witham is high, the Environment Agency and Upper Witham Drainage Board routinely turn off the transfer pumps on the River Till to prevent flooding around the Brayford Pool in centre of Lincoln, causing the River Till to overflow its flood banks, inundating farmland and access roads to the villages of Stow, Sturton by Stow, Bransby and Broxholm.

I have serious concerns about the restriction of access to remote communities by emergency services due to the increased flood risk arising from all four of these solar projects.

High water levels in the River Till also exacerbate flooding problems over 10 miles away, due to rising water levels in drainage dykes delivering into the Till.

When one considers the storm water run off from 16 square miles of solar panels delivering onto the catchment area of the River Till, the flooding will be 'spectacular', and no amount of 'mitigation' by the developers will equal that already provided by the soil itself and the existing drainage systems, which have stood the test of time.

Most of the soil on the proposed development areas has a high clay content, which despite its ability to hold moisture and produce high crop yields, becomes saturated during prolonged periods of heavy rain, allowing excess water to shed off directly into the dykes.

Another characteristic of clay soil is its hard, impervious nature when dry, following a drought, when rainwater from a sudden storm will run off faster than it can be absorbed.

The Cottam Solar development would change the whole character of the environment from a rural and pastoral landscape into one of the largest solar industrialised areas in the world, with a significant impact on the rich diversity of wildlife, which currently inhabit the fields, ditches, and hedgerows.

Also, insufficient effort has been made by the developer to determine the effects of the changes in hydrology on aquatic vegetation, invertebrates, flora, fauna, wildlife in general in the dykes, ditches, and the River Till.

Much of the land being appropriated is owned by landlords, who do not live in the area and rent their land to tenant farmers, who stand to lose their livelihoods if this scheme, along with others in the area is approved, with a consequent loss of farming skills and agricultural output on which the nation depends.

The reflected glare, glint and dazzle from the panels would be a hazard to motorists travelling along the A156, A1500, B1398, Knaith Hill, and affect commercial aircraft & gliders from local airfields at Sturgate and Kirton in Lindsey, as well as the Red Arrow acrobatic display team who also continue to use the airspace over the Trent Valley, despite being relocated to RAF Waddington.

No consideration has been given to the negative effect the installations will have on tourism, leisure, hospitality, house prices, mental health, welfare, and wellbeing of the local population in the communities, who will have their surroundings destroyed completely.

The upheaval and disruption caused by the installation of thousands of tons of solar panels, together with cable connections, inverters, transformers, and battery storage systems will be extreme and cause a great deal of inconvenience regarding access to local communities, restrictions of essential and emergency services along roads, which are already challenging and inadequate.

The sourcing of an estimated 60,000 tonnes of solar panels from countries such as China also raises socio-economic and ethical considerations regarding the use of enforced labour.

It is estimated that the amount of global CO₂ released to the atmosphere during mining, processing, manufacture & transport of the panels alone would amount to 78,000 tonnes CO₂.

The developer claims that 600MW of solar energy output would avoid the release of 120,000 tonnes of CO₂/year.

However, at an average annual load factor of 10%, Cottam Solar would save only 12,000 tonnes and therefore take 6.5 years to recover the 78,000 tonnes CO₂ released by solar panel manufacture alone.

The heaviest demand for electrical power is in the southeast of England and many people in this part of the Northeast Midlands question why land along the banks of the Thames estuary is not being considered with grid connections to the redundant power station sites of Kingsnorth and the Isle of Grain. rather than take up the valuable productive farmland of Lincolnshire.

This would reduce power transmission losses which over 150 miles are estimated to be around 10%, and the annual average load factor is likely to be around 11% at more southerly latitudes, due to the increased elevation of the sun and daylight.

However, a project of this magnitude would never have been considered in the 'home counties' of the southeast.

As a retired Chartered Chemist, Senior Engineer with the CEGB and former Pollution Inspector serving with Her Majesty's Inspectorate of Pollution within the Department for the Environment, projects such as the Cottam Solar would never have received operational approval based on their technical and environmental submission.

Roger Jones, CChem, MRSC

Senior Member of the Water Management Society

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Representation by

Alfred Roger Jones

I live in the village of [REDACTED] and am concerned that the Planning Inspectorate should be considering a project covering a huge area of productive agricultural land, which with the other 3 schemes would amount to over 16 square miles of the Trent Plain. The four projects completely surround 30 villages and therefore should be considered together as a complete entity by the inspectorate, rather than separately. It is predicted we will lose hundreds of square miles of arable land in Lincolnshire from the Wash and low-lying areas of the East Coast due to rising sea levels, despite the UK's efforts to reduce CO2 emissions of which we contribute only 1% globally and therefore unlikely to make a significant difference. The fertile farmland in North Notts and West Lincs has fed the nation since Roman times and has become known as the 'Breadbasket of Britain'. The estimated loss of grain production from the areas being taken by the entire solar projects would easily exceed 50,000 tonnes. Although the quality of the land has been claimed by the developer to be of lower agricultural classification, which I understand has been disputed, the clay content retains moisture during periods of drought, often resulting in higher crop yields than land in the highest category. During the darkest days of WWII, when every available acre was under the plough and every square foot of land was under the spade, we almost starved when the UK population was around 20 million less than it is today. Events in Ukraine have demonstrated the UK's vulnerability to supplies of imported grain and the effect the conflict has had on the price of cereals. I am also concerned about the negative visual impact on the landscape due to the huge areas of glass covered land involved and the height of the panels, which at 4.5 metres high are impossible to hide with a hedge. These structures would not only be visible nearby but also from the viewing area on the high ground at the side of the A1033 and from the B1398 which have commanding views over the Trent Plain. The development would change the whole character of the environment from a rural and pastoral landscape into one of the largest industrialised areas in the world, with a significant negative impact on the rich wildlife which currently inhabit the fields, ditches, and hedgerows. The land being appropriated is owned by landlords, many of whom do not live in the area and rent their land to tenant farmers, who stand to lose their livelihoods if these schemes are approved with a consequent loss of farming skills and agricultural output. There will thus be a reduction in employment in the area and an upheaval and migration of the resident population. Along with many of my neighbours, I take regular walks along the country lanes where these solar arrays are being considered and I anticipate there will be a negative effect on our welfare and wellbeing, which for many was the very reason we chose to live and remain here. The reflected glare from the solar arrays would be a hazard to motorists travelling on the B1398 and A1033. Aircraft such as the Red Arrows who use the airspace above the Trent Valley along with commercial and private aircraft and gliders flying from local airfields would also be at risk. Sturton by Stow is only 1 mile away from the picturesque village of Stow, where St Mary's Minster is one of the oldest Saxon Churches in England. The home of St Hugh, Bishop of Lincoln, who commenced the building of Lincoln Cathedral, lies at the side of the A1033 old Roman road only a short distance from our village. The scale of the Cottam project would dwarf and surround much of our local and national cultural heritage. I understand at northern latitudes, solar panels have an average annual load factor of only 9% to 11% of the maximum designed output used by the developer to justify the scheme. Due to its low contribution to electricity capacity, even with battery storage it is questionable if the net benefit to the nation is worthwhile when the loss of productive agricultural land is considered. By comparison, wind turbines have a far smaller footprint and a load factor at least 3 times that of solar. Surely, Solar PV Power Generation is most effective and efficient at the point of use on the roofs of domestic, commercial, and industrial buildings, where it can be utilised to reduce power consumption, thereby avoiding power loss due to transmission and transformation to 400kv. The upheaval of installing an estimated 0.3 million tonnes of solar panels, together with cable connections, inverters and transformers will be extreme and cause a great deal of inconvenience with access to local communities and restriction of essential and emergency services along roads which are already challenging. Also, using the connections to the 400kv grid at Cottam and West Burton would take up the spare capacity for any later installation of continuous uninterruptible sources of power such as the Roll-Royce Small Modular Nuclear Reactors for which these two power stations are ideally positioned and already provided with the necessary infrastructure and cooling water. The sourcing of an estimated 0.3 million tonnes of solar panels from countries such as China also raises ethical considerations. It is estimated that the amount of global carbon dioxide released during material sourcing, processing, manufacture, and transport of the panels to site would amount to 0.4 million tonnes CO2. The surface water runoff from the huge areas of solar arrays also is a source of concern considering that the landscape is flat and relies on land drains to deliver water into small streams and rivers. Sturton by Stow already suffers inundation of its access roads during periods of heavy rain when the transfer pumps from the River Till into the Fosdyke Navigation Canal are shut down by the Environment Agency and the North Witham Drainage Board. This is done to prevent water in the Fosdyke Navigation Canal flowing back into the Brayford Pool in the centre of Lincoln contributing to flooding when the River Witham is in spate. During heavy rain, the runoff from hectares of solar panels inclined at 35 degrees will be spectacular, entering the land drains leading to the River Till without the natural attenuation of the soil and exacerbate an already serious flooding problem on Fleets Road which becomes impassable. I have serious concerns about the restriction of access to remote communities by emergency services due to the increased flood risk. Although Cottam and West Burton Power Stations cover a huge surface area when land reclaimed from the disposal of its fly ash is considered, no effort has been made by IGP to approach the owners to site solar arrays nearest to the connections to the National Grid, although in every sense these are brownfield sites. I understand there have been incidents with fire and explosions of large battery storage units much smaller than those being proposed for the Cottam Project and the other three Projects and therefore wish to express my concerns regarding the safety, fire risk, release of toxic fumes and environmental pollution from these huge installations. There appears to have been a complete lack of a suitable and sufficient environmental assessment of the effects on the animals, birds, amphibians and reptiles in the surrounding fields and hedgerows. Neither has there been any study done to quantify the effects on the aquatic invertebrates in the agricultural drains and rivers such as the River

Till, which form part of the food chain for fish, wading birds amphibians and reptiles. Migratory birds such as Canada Geese and swans use the fields in this area and there is a risk that the huge areas of glass may be mistaken for water by the birds who would injure themselves by attempting to land as has already happened in other parts of the world. Roger Jones, CChem, MRSC