Submission to the Planning Inspectorate by Paul Harrison reference # 20031592

1.0 Industrial Scale BESS Battery Units:

1.1 The developer proposes to utilize lithium-ion technology to provide short term battery storage on the Longfield site. It's assumed these batteries will download electricity generated by the North Sea Wind Farms onshoring at Tilbury, in addition to temporary storage of locally generated electricity sourced from solar voltaics & ultimately uploaded at advantageous tarifs onto the National Grid. It should be noted that technology utilizing lithium-ion batteries can only offer restricted storage for a period of 2-4 hours. Therefore the site operators will benefit from the lower cost of generation from off-shore wind turbines.

1.2 It's widely acknowledged that extraction & mining of lithium-ion is hugely damaging to the environment. The constituent elements of these batteries Cobalt, Manganese & Nickel are also highly polluting & result in long term or permanent pollution & damage to extensive regions within which mining extraction occurs - almost exclusively in economically vulnerable Third World Nations where indigenous populations including children are universally exploited. This extraction industry is dominated circa 80% by the Chinese - who currently pose an ominous strategically disruptive threat across the entire Pacific region. Lithium-ion batteries are not recyclable & all components are destined to landfill - where multiple highly toxic minerals will cause long term or permanent environmental damage & threaten water quality.

1.3 The Industrial scale BESS battery system as proposed by the developers, will be located within 1 mile of existing high density residential communities circa 20,000 population - with plans for a further 10,000 population Garden Village residential development at an advanced stage nearby.

1.4 The course of the River Ter and the Ter Valley pass through the entire Longfield site. This river empties into the Chelmer & thence the Blackwater Estuary. The Ter's route passes within 1/2 mile of the proposed BESS on lower land. It's highly probable that any large scale or even moderate fire incident or explosion will result in tens or potentially hundreds of thousands of gallons of highly toxic polluted water run-off entering the Ter causing widely dispersed environmental damage to water & fauna.

1.5 The location of the BESS Battery is sited behind Toppinghoehall Wood (itself a fragment of Ancient Woodland) to "hide it" rather than for any operational or logistical advantage. The BESS site is not located adjacent to the Bulls Lodge substation & its costly connection will result in avoidable visual damage to the local amenity & landscape when alternative options are available through connections to National Grid Power lines running through the site.

1.6 The battery site will be difficult to access without additional avoidable & intrusive infrastructure & roads. Large scale on-site water storage will be required to deal with the potential risks of fire & explosions. A 15 metre buffer is entirely inadequate as large blast proof banks will be required in a worst case scenario to restrict the effects of explosion & contain egress of polluted water in the event of a major incident.

1.7 Essex Fire Authority has confirmed it plans to inspect the Industrial BESS battery complex upon its completion & have no remit to supervise manufacture or installation. This laissez-faire position is entirely unacceptable given the nature of the potential hazard to local populations. The Authority has limited experience or expertise in the operation of Industrial scale BESS Battery Systems.

1.8 Solar energy is a valuable yet marginal & highly seasonal contributor to the UK's energy mix. However, investing in yet more highly variable renewable sources of electricity exacerbates current issues relating to a demonstrable lack of a durable & reliable base load capacity. This deliberate "manufactured" imbalance increases the potential for politically unacceptable shortages & outages during periods of high demand pressure &/or cloudy dull weather when solar radiation levels are much reduced. It also exposes the UK's energy resource to unforeseen events such as are currently being experienced with shared connections to Continental suppliers such as Norway, France & even Russia. What is required is investment in cost effective, strategically reliable, environmentally sustainable base-load capacity within the UK to reduce the gap between peaks & troughs in electricity supply irrespective of weather. Building thousands of Industrial scale BESS battery systems across the UK is expensive, poses a highly dangerous security risk as it exploits a relatively new highly volatile, little understood battery technology. As for Wind turbines, a more carefully calibrated ratio of wind turbine contribution to the overall mix of energy generation of electricity is demanded - rather than an ill-considered 'flavour of the month' rush for wind!

1.9 Potential electricity generated by Longfield would perhaps supply domestic electricity for 50,000 homes - a figure achieved by three offshore wind turbines. In terms of land use solar requires 600 times the amount of land to produce the equivalent electricity as a single conventional power station. Currently such power stations are principally powered by natural gas (imported from as far as the Middle East) or biomass imported as wood chips from North America & transported to power stations across the UK! The Government could quickly & without delay develop strategies to manage existing & newly planted forest & woodland for renewable biomass production within the UK for power stations. This opportunity appears to have been overlooked!

2.0 Site Selection

2.1 The current site was selected in accordance with earlier guidance issued by the Planning Inspectorate in relation to NSIP Solar Farm Planning Applications, in which it stated a preference for larger sites generating 50 MW+ capacity, under the ownership of a single

landowner. This has subsequently & more recently been revised to reduce the adverse impact of Industrial solar sites on UK food production - as well as important environmental & recreational amenity considerations.

2.2 The Solar Farm Revised draft NPS on renewable energy infrastructure under heading **Planning for Nationally Significant Infrastructure Projects** "Large Solar Farms March 2022 para 1.2 states:-. Agricultural Land Classification: Where possible, ground mounted Solar PV projects should utilise previously developed land, brownfield land, contaminated land, industrial land, or agricultural land preferably of classification 3b, 4, and 5 (avoiding the use of “Best and Most Versatile” cropland where possible).

2.2 Currently over much of the Longfield site, a range of high value crops are grown including potatoes, legumes, wheat, rape & sugar beet - all of which may be irrigated through a complex network of underground irrigation pipes sourcing water indirectly from the River Ter & intermediate reservoirs. Much of the land in question is undoubtedly of a high grade 2a/b, which is borne out by previous land classification studies; please see Professor Alders paper 3 below An expert report published by Professor Alder challenges the conclusions of consultants appointed by the developers.
One of the key strategic issues yet to be resolved by this and similar planning applications is how best as a Nation we may reasonably manage the competing & inherently irreversible uses to which our most precious resource, land, may be utilised.
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I have therefore copied an extract from Professor Alders paper below as it is worth repeating:-

“A separate paper is attached which is an analysis of an ALC report prepared by Land Research associates (LRA) for Longfield Solar farm.
The ALC for the proposed Longfield Solar Farm on the 1:250000 maps showed the entire site to be ALC grade 2. As such, the entire site would be classified as BMV and should be protected. The ALC maps are regarded as acceptable for strategic purposes but developers should carry out a detailed ALC for specific developments.

3. AGRICULTURAL LAND CLASSIFICATION FOR LONGFIELD SOLAR FARM (ALC)

The survey covered 637.6 hectares - the original site proposed for the solar farm prior to the non-statutory consultation. The site for solar panels was subsequently redefined as 432 hectares in the revised public consultation document. The survey resulted in a significant downgrading of Grade 2 land to Grade 3a and Grade 3b. As a result, the area of BMV land is reduced (based on the Natural England definition 2021):-

637.6 ha 93.4 Grade 2
171.1 Grade 3a 264.5 BMV = 41%
432 ha 55 Grade 2
103 Grade 3a 158 BMV = 37%

The detailed analysis of the ALC by LRA indicates that the reality is that 55% of the site is BMV by the Natural England definition of BMV as 1-3a. Overall, the site is accepted as valuable farmland. Based on government policy for BMV land, then the whole site should be protected in accordance with NPPF.
IT IS QUITE CLEAR GOVERNMENT POLICY IS TO PROTECT VALUABLE FOOD PRODUCING FARMLAND.

4. WHAT CONSTITUTES BMV LAND?

In 2015 the Ministry for Housing & Local Government (MHCLG) issued guidance on Best and Most Versatile Land (BMV) and that was classified as Grade 3b and above.
In February 2019 a question was addressed to DEFRA by Rosie Cooper M.P. The reply from George Eustice was that BMV is classed as Grade 3b and above.
On 29/6/22 the Environmental Audit Committee of the House of Commons met. The key exchange relating to BMV is quoted below.
Q8 James Gray: Very briefly on a remark you made a moment ago, have you had recent discussions with the Department for Planning? I had a letter from it yesterday indicating it thought that grade 3b land was perfectly acceptable for solar. Is that right or not?

George Eustice: It is not right. This is something that we are discussing across Government at the moment. I looked at this issue in some depth in about 2015 when we had something of a solar rush at that time. We agreed with the then MHCLG that its chief planning officer would issue guidance to planning authorities that created a strong presumption against solar farms on the best and most versatile land and that is classified in law as grade 3b or above. Grade 3b land is classified as BMV land, best and most versatile.

Q9 James Gray: That needs to be clarified. At the moment DCLG is saying 3b is allowable for solar and you have said the opposite, so it needs to be clarified within Government. I think your point that 3b is not acceptable is spot on and absolutely right.

George Eustice: We issued this guidance, as I said, about six or seven years ago and this problem was resolved for some time. We are conscious that there have been a few quite big schemes in recent months or over the last 12 months where planning authorities seem to have either forgotten or started to disregard that advice. I don't think that new guidance was issued by MHCLG but if, as you say, it doesn't understand

4. the legal definition of BMV land obviously we will that up with it, but 3b constitutes BMV land. Several MPs have received confirmation that the above represents government policy.
James Gray M.P. "Hansard speaks for itself and is decisive in a court of law."
Sir Oliver Heald M.P. (also a Q.C) "The Minister's statement in the House of Commons proceeding and recorded in Hansard can be relied on as a statement of Government policy."

IT MUST BE CONCLUDED THAT THE ENTIRE LONGFIELD SITE IS BMV AND SHOULD NOT BE DEVELOPED AS A SOLAR FARM.

2.3 It's the case that whilst alternative & significantly more environmentally sustainable forms of energy are available in the short, medium & long term, there is an urgent & pressing need to produce high quality food locally in a sustainable manner & at a reasonable cost to the consumer. If this planning application is allowed to proceed it is extremely unlikely this land will ever return to agricultural food production. It's also the case that Longfield will create a significant precedent for similar ongoing & future planning applications on good farming & environmentally valuable land.

2.4 The Public Consultation document states ""Once Longfield Solar Farm reaches the end of its lifespan of 40+ years, its infrastructure can be dismantled and the land returned to its previous condition".
Three points are germaine in relation to this statement.
First, topsoil on certain fields along Noakes Lane & areas adjacent to the Boreham Road has already been stripped from fields & removed. I presume it was sold to commercial property developers. It will be & has been claimed, this process seeks to impoverish the topsoil prior to seeding with wildflower mixtures! How this can be reconciled with enhancing the environment or as part of a mitigation measure escapes logic. Microorganisms (mycorrhiza) exist within the topsoil (principally the top12") and this is the foundation of all life!
Second, the land will inevitably be polluted by toxic chemicals resulting from the change of land use.
Third, no-one associated with this project will be alive and commitments, no matter how contractually genuine they appear at the outset, will be legally unenforceable in 40 or more years. Third party commercial entities and/or lessees may well no longer exist: added to which the landlord has made no legal or financially binding commitment to reinstate the land from his own resources.
Land committed to solar voltaics will be irreversibly polluted by highly noxious chemicals & residues over 40 years as a site for ground standing solar voltaics will be prohibitively expensive to remove i.e. underground cabling, hardware, concrete, miscellaneous non-friable road materials & pipework. None of this potentially polluted infrastructure is recyclable & it will all end up as landfill.Probably at the taxpayers expense.

4.0 Location of the Longfield Site

4.1 A seven-year comparison of solar radiation (2013-20) between the adjacent Chelmer Village weather station and Southend weather station confirmed the proposed Longfield site receives an average each year of 1,166 hours of sunlight at ground level in comparison with 2,378 hours at Southend (only 23 miles south of Chelmsford!). No wind turbine operator would consider siting turbines in a sheltered valley or in the lee of a hill. So why locate a solar farm outside an area where optimal solar and climatic conditions exist? This simple practical logic underscores the unsuitability of this site.

4.2 No other site has been investigated or sought.

5.0 Environmental Impact:

5.1 For several centuries this land has been managed & evolved as open agricultural farmland. The area is interspersed with the fragments of irreplaceable eco-rich Ancient Woodland often connected by ancient hedgerows containing farm holdings & securing fields as well as defining parishes & running alongside roads & protected country lanes with links to historic communities. Not since the first Acts of Enclosure 1549 will this region have witnessed such radical & irreversible changes in its use & appearance.

5.2 The proposed site is adjacent to an extensive regional urban & rural population. As such each year, it provides an enormously rich & highly prized recreational resource for thousands of walkers, cyclists, horse riders who enjoy informal peaceful solitude. This region also provides a rich, diverse & stable habitat for flora & fauna.

5.3 The Longfield Solar development will exclude generations from the surrounding population to free access to open skies & easy access to an informal source of recreation. The area provides a unique resource to people of this region of Essex, who enjoy access to the traditional countryside. Such access offers the benefit of low key supervision of the farmland in an era of rapidly increased levels of rural crime together with varying degrees of interest in & ability to study the countryside and its flora & fauna.

5.4 No attempt has been made during the development of the Longfield proposals to implement any serious surveys of recreational use on this land. Nor are any proposed. There are no metrics by which the short or long term impact on informal recreation can be measured. None are proposed by the developers. The untested provision of cycle ways & footpaths will in no way compensate for the loss of traditional countryside or the uses to which it has been exploited over a great many years.

5.5 The Longfield site has historically provided popular public access to relatively unmanaged field boundary footpaths and bridleways which crisscross and link into pathways along the entire Longfield site. The Essex Way for example offers regional access to long distance hikers/walkers of National significance, as well as shorter sections suitable for local walkers. Foot traffic along the Essex Way itself has expanded exponentially since the 2020 pandemic which exposed it to a larger & demographically enriched user base. It's highly improbable anyone seeking the peace & sanctuary currently provided by this relatively unique, unhindered farmland setting will contemplate passing through such an alien, imposing & inhospitable industrial landscape as that provided by stark solar infrastructure, constraining high chain link fences & other paraphernalia such as a plethora of signage, security lighting & transformers.

5.6 There are no available metrics by which anyone can quantify the loss of opportunity incurred by such an extensive tract of traditional peaceful farmland being lost & repurposed as an industrial site.

5.7 The loss of this tract of open farmland will have a profound impact on the mental health of tens of thousands of people across the generations who currently rely on it for a convenient peaceful escape from the intensity & pressures of modern day life.

6.0 Landscape, Environment & Ecology

6.1 This almost unique agricultural ecosystem has evolved over many centuries. With the exception of badgers larger mammals (larger than hares) will be driven from the land and permanently excluded. It remains to be seen what occurs as & when badgers take up residence on the site & create disruptive badger setts. This management regime will disrupt or destroy the local ecology & food chain. No studies are available to assess the short, medium or longer term impact on wildlife - birds or mammals. This is a matter of great concern at a time when the Government wishes to introduce wildlife, promote rewilding of the countryside (aka Natural England) and protect flora and fauna throughout the UK.

6.2 Raptors feeding on carrion & small mammals will almost certainly be adversely affected as flight paths will be obstructed by a maze of hazardous obstacles. No scientific studies exist to quantify the impact of solar voltaics on UK bird populations, in spite of the fact that existing International studies indicate a damaging adverse effect.
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6.3 Pigeon populations - already high, as already evidenced with the introduction of alternative wildflower meadows & a reduction in organised shoots, will grow exponentially and severely damage solar panels with their excreta. Pigeon shoots designed to cull bird populations are not an option!

6.4 The temperature in close proximity to solar voltaics is typically +3C higher than ambient temperatures. Insect populations will almost certainly and unseasonably increase. Increased insect population in and around voltaics will attract swooping birds - & bats, of which there are several species in this area. These protected populations will be confused & there is a great risk their sonar sensory organs will be affected: inevitably leading to casualties. The site will be unsupervised by independent environmental monitoring, so any deaths or casualties will not be recorded. It is significant that no such figures exist for any other UK solar site. In spite of several scientifically researched papers & booklets being sponsored by the offshore turbine industry & published reviewing the impact of wind turbines on bird & migratory bird populations, no such studies have been implemented on UK solar voltaic sites.
Migratory swooping birds feeding on the wing such as Swallows, Swifts and House Martins of which there is a declining population in the area, will almost certainly be affected due to loss of habitat and preferred feeding sites. The risk posed by the solar voltaics themselves & reflection and glare from the solar panels is a matter of great concern.
There is no scientific evidence to assess the impact on bat populations which is a matter of great concern - & a topic ignored throughout the Longfield consultation process.

6.5 Currently 12 heritage assets have been identified in the scoping report. In all cases the scheme has the potential to change the assets' agricultural context and significantly diminish their significance.

6.6 The predominant tree species & the major constituent of the remaining fragments of Ancient Woodlands throughout this site is oak (Quercus petraea). Many ancient oaks are already stag-headed & in acute decline. This will be exacerbated by changes in water level & compaction of the soil resulting from the change in land use & run off resulting from the voltaic panels.

No tree survey or detailed fully-costed management plan has either been prepared or published.

6.7 Supplementary tree & hedgerow planting materials will in all probability be externally sourced from an alien provenance involving imported species from the Continent. This brings with it the contingent risk of imported pestilence and disease - already evidenced with Ash die, Oak Wilt, Dutch Elm Disease & Horse Chestnut Blight which has decimated indigenous species across the south of England in particular.

6.8 Undertakings to manage any landscape based on the "status quo" are entirely flawed. The Longfield Public Consultation booklet describes a "rigorous programme of environmental assessment". Expert organisations such as the Woodland Trust or a suitable Government Agency such as The Forestry Commission, must be contracted to prepare comprehensive and detailed assessments/tree surveys for this site, make recommendations on tree and woodland management programmes.

6.9 These must be supervised at regular intervals. A regime of appropriate financial penalties must be in place at the outset to ensure compliance.

IN CONCLUSION:

NATIONAL PLANNING POLICY FRAMEWORK (NPPF)

The updated NPPF was released in July 2021. The Longfield proposal should be rejected on the following basis;

i) It conflicts with the updated NPPF (July 2021) which includes a strengthening of the environmental objective –requiring sustainable development to protect and enhance our natural, built and historic environment including making effective use of land and improving biodiversity.

ii)The use of greenfield land for large-scale solar developments conflicts with NPPF Chapter 11 (Para 119) as it does not make effective use of land.

iii) It conflicts with NPPF Chapter 15 – Conserving and Enhancing the Natural Environment (specifically Paras 174-175 and 183) where it is clear that the best and most versatile land should not be developed unless there are exceptional reasons and where the economic

and other benefits of this land as it is currently used MUST be taken into consideration. This policy also clearly states that planning policy and decisions should protect and enhance valued landscapes.

iv) The development will cause harm to the context and setting of local heritage assets and the application is therefore contrary to NPPF Chapter 16 – conserving and Enhancing the Historic Environment (specifically paras 189, 194, 195, 199 and 200).

v) It conflicts with the updated NPPF's emphasis on preserving tranquillity (Para 185. Identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason) and the Government planning guidance regarding noise and existing areas of tranquillity.
This paper concentrates on change of land use being damaging in the context of loss of valuable farmland. The paragraphs above relating to the NPPF illustrate there are other issues with land use change not just relating to food production and these apply to the

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