ELECTRICITY ACT 1989

TOWN AND COUNTRY PLANNING (SCOTLAND) ACT 1997

THE ELECTRICITY WORKS (ENVIRONMENTAL IMPACT ASSESSMENT)

(SCOTLAND) REGULATIONS 2017

Statutory Consultation - ECU00004815

Voltalia UK Ltd has applied to the Scottish Ministers for consent under section 36 of the Electricity Act 1989 to construct and operate a ground mounted solar photovoltaic (PV) development, Battery Energy Storage System (BESS), associated infrastructure, access, and landscaping at Springfield Farm (Central Grid Reference 74514 71531). This falls within East Lammermuir Community Council area.

The Company has also requested a direction under section 57(2) of the Town and Country Planning (Scotland) Act 1997 that planning permission for the development be deemed to be granted.

This document constitutes East Lammermuir Community Council's response to the application and request for planning permission.

East Lammermuir Community Council (ELCC) objects to the proposal and does not believe that planning permission should be granted.

The following pages set out why East Lammermuir Community Council (ELCC) is objecting.

We ask that Scottish Ministers reject the proposed scheme.

Contents of this document

People, place and planet

East Lammermuir is seeing an unprecedented and unique impact from 15 current projects that fall under the "Net Zero" effect. These include the onshore works for the recently consented Berwick Bank Windfarm, generating sufficient electricity to power the whole of Scotland several times over.

Perhaps four in five local people still support the overall intention for Scotland to play its part in the work to reverse climate change and see that East Lammermuir must play our part in that work.

East Lammermuir Community Council are in favour of good solar development: we recently supported the proposal from Fred Olsen Renewables for their Solar Farm at Crystal Rig, as it meets the requirement that Solar should be deployed where there is little else that can be done with the space. We further believe that where a solar development is considered at scale, it should be decided upon locally, not nationally – and any development must consider sustainability in its widest sense, including the impacts on sustainability of food production, sustainability of communities, impact on health and wellbeing.

This community council has witnessed a deep wound inflicted on the very local community through the present Springfield Solar & BESS proposal, and the way it has been presented. The construction process, including traffic volumes; and the subsequent 40-year existence of this vast development would have a further very negative local impact – with no consequent benefits in terms of required electricity given the neighbouring developments and the limited capacity of the grid to move the power elsewhere*[1].

In addition, expert advice illustrates that the proposal is not sited in a place or a way that will reduce carbon emissions or even make money for the owners.

This has added to the wound as the proposal appears not to benefit anyone – certainly not the local community – not the owners – and not the planet, which so desperately needs positive and helpful action to reduce carbon emissions.

In this sense, ELCC is not persuaded that the development can be classed as "essential infrastructure". Therefore, it should not be permitted as it contravenes important local and national planning requirements, not least the protection of agricultural land.

[1] Data from National System Energy Operator suggests that solar self-curtailment volumes in Great Britain could rise to between 10 and 20 TWh by 2040, and that the 2030 connection queue has higher capacities of solar and onshore wind than is required. The NESO advice to Government reinforces the importance of balancing supply with demand, managing flexibility, avoiding curtailment and how uncontrolled solar development can fail to deliver a low-cost energy system.

The following pages seek to provide evidence-based arguments to demonstrate why Scottish Ministers should reject the application for planning permission. What is more difficult to capture is the psychological and health impacts on the local community – which are very obvious to us here. We urge Ministers to make sure that their decision is fully informed by human as well as legal considerations. The intention to achieve a just transition ultimately requires people in local communities to feel that they are part of this change, not just unfortunate collateral damage.

This community council is ready to work with all stakeholders to achieve this ambition – but we are certain that the current proposal will not support it.

Please consider our submission in full and feel welcome to come here to see the people and the place that would be so drastically damaged should consent be granted.

We urge you to reject the proposal.

Scope of submission

East Lammermuir consists of four discrete villages and surrounding areas – Oldhamstocks, Innerwick, Spott and Stenton.

The present proposal impacts primarily on the Oldhamstocks Parish, and in order to maximise the impact of local voices, the Community Council asked Oldhamstocks Community Association to lead on most of the direct planning liaison with Voltalia in relation to the Springfield proposal.

The Oldhamstocks Community Association will submit their own representation in respect of the Springfield proposal.

We are aware of and have read dozens of high quality, policy and legislation-based heartfelt individual submissions sent in by local residents, and we ask you to give these the objective and thoughtful scrutiny we know you bring to submissions from statutory consultees.

Furthermore, a local group has already submitted a comprehensive response to the planning application under the title of SORELL – Save our Rural East Lammermuir Landscape. At the time of writing, this submission is yet to be lodged on the ECU website under the present application ECU00004815.

We are not appending that whole SORELL submission here, on the understanding that ECU can see it in its entirety already. It can currently be seen at this link; if there is any doubt about the response we are referring to, please contact us and we will provide it in its entirety.

Having reviewed the content of the SORELL submission to ECU, East Lammermuir Community Council fully endorses the approach, the content and the conclusions of that submission. ECU is requested to consider the SORELL submission as part of the ELCC submission and assign it the status of a response from a Statutory Consultee, consistent with ELCC's role.

East Lammermuir Community Council (ELCC) position

The SORELL submission represents the Community Council's views, and as such we request that the Energy Consents Unit:

Refuses consent for the Springfield Solar Farm and BESS application in its current form; or failing that,

Calls a Public Local Inquiry to allow for full public scrutiny of the considerable planning, environmental, and legal issues presented.

This conclusion is made in the interest of protecting East Lothian's rural character, upholding the integrity of the Scottish planning system, and ensuring that nationally significant infrastructure proposals are held to the highest standard of accountability.

- Call for a Public Inquiry

This application has been made to the Scottish Ministers under Section 36 of the Electricity Act 1989 for the construction and operation of a Solar Farm and Battery Energy Storage Facility ("BESS"). In the case of S36 applications planning authorities are a consultee to the application process and are not the Consenting Authority. With regard to paragraph 2(2) of Schedule 8 to the Electricity Act and regulation 8 of the Consents Regulations, if a planning authority makes an objection within the timescale given by regulation 8 (1) and that objection is not withdrawn, the Scottish Ministers must cause a Public Inquiry to be held unless the Scottish Ministers propose to accede to the application subject to such modifications or conditions as will give effect to the objection of the planning authority.

Where Scottish Ministers are not obliged to cause a Public Inquiry to take place i.e. when the relevant planning authority objects, (sched 8 Para 2(2) of the Electricity Act 1989), there remains a discretionary basis upon which Scottish Ministers can consider whether to cause a Public Inquiry to take place (sched 8 para 3 of the 1989 Act).

So, where objections have been sent to Scottish Ministers (via ECU) they must consider the objections together with all material considerations with a view to determining whether a Public Inquiry should be held with respect to the application and if they think it appropriate to do so, they must cause a Public Inquiry to be held. The evident weight of public objection to the present scheme alone should lead Scottish Ministers to invoke a Public Inquiry.

East Lammermuir Community Council has repeatedly called for (one) public inquiry into all of the (fifteen) current electricity infrastructure developments in East Lammermuir. According to the Environmental Impact Assessment (Figure 4.1 Cumulative Developments), the present planning application fails to take account of nearby developments at East Neuk (existing wind turbines), Ferneylea (existing wind

turbines), Oxwellmains (Restoration of Valencia Landfill site due to close September 2025, Restoration Plan already submitted to SEPA for consideration), Thorntonloch (proposed BESS with contracted Grid Connection) and Skateraw/Crowhill (the Berwick Bank Windfarm Onshore works (consented)). No account has been taken of the "temporary" northbound slip off the A1 at Bilsdean and the temporary haul road from the C120 at Birnieknowes to the Branxton Substation which are currently being constructed by SPEN. Additionally, whilst we know that the Branxton Substation is the target, the route and nature of any grid connection is to be the subject of a separate planning application – a clear example of salami-slicing what are truly one single development. We believe that the arguments for each separate development must be heard in the context of the whole. The local community deserves an opportunity to hear and contribute to the discussions about a set of developments which will irrevocably change this local place for ever.

In summary; **ELCC wish to see the Springfield application rejected.**

If Scottish Ministers are not minded to simply reject the application, we will work as a party to any public inquiry to ensure that a just transition is more than a policy intention. A public inquiry would help with making that policy meaningful.

Reasons for objection – representing local views - survey

After the Voltalia planning application was complete and had been submitted to ECU on 6 June 2025, ELCC carried out its own survey of residents of the Oldhamstocks Parish to determine their views. This closed on 11 August 2025, with 91 completed surveys from residents of the Oldhamstocks Parish.

The full questionnaire and a description of the methodology used is at Annex A to this document.

The central question to inform the Community Council's position was "What view best reflects your opinion on the proposed Springfield Solar Farm & BESS?"

The adult population of the Oldhamstocks Parish is approximately 200 people. Our findings show that of 90 respondents who answered this question, the spread of responses is as follows:

Strongly Support	Tend to support	Neither support or oppose	Tend to oppose	Strongly Oppose
n = 1	n = 0	n = 1	n = 4	n = 84
1%	0	1%	4*%	93%

*figures may not sum due to rounding

There is evidence that not all residents of the parish received an invitation to respond to the survey (many went into junk mail folders) – or that some submitted one response per household, rather than one per individual 16 years old and over. There is no reason to think that non-respondents would have a significantly different view from those who have filled out the survey. Given the very strong alignment of responses, with a survey response rate of approximately 45%, that is 90 of the c.200 adults living in the Oldhamstocks Parish, we are certain that **the large majority of local residents who would be directly affected by the Springfield Solar Farm & BESS proposal are strongly opposed to the proposal as set out in the planning application**.

This gives the community council a strong basis for objection, as our purpose under the East Lothian Community Council scheme to establish Community Councils (1976) is to "ascertain, co-ordinate and express to the local authorities for its area, to public authorities and to private companies, corporations or individuals the views of the community which it represents in relation to matters for which those authorities, corporations or individuals are responsible".

Our primary reasons for objection are;

• Significant breaches of NPF4 Policies, including

NPF4 Policy 3 (Nature crisis/Biodiversity) – Hedgerow removal and security fencing lead to habitat fragmentation with no demonstration of biodiversity net gain.

NPF4, Policy 4 (Natural assets) – Permanent loss of prime farmland without overriding benefit.

NPF4 Policy 11 (Renewables reducing carbon emissions) – Poor siting combined with a late 2031 grid connection will fail to reduce emissions.

NPF4 Policy 20 (Blue and Green infrastructure) - Loss of valued recreational and active travel routes.

NPF4 Policy 23 (Positive effects on human health); High security fencing, lack of access to recreation spaces will have an adverse effect on mental and physical health.

• Inadequate landscape and visual assessment, with underreported impacts on designated receptors;

• Failure to address statutory scoping requirements and significant stakeholder concerns;

• Procedural errors and omissions within the Environmental Impact Assessment Report (EIAR);

• Lack of meaningful public engagement and consultation, contrary to NPF4's principles of a fair and transparent planning system; and the Aarhus Convention;

• Unmistakable evidence of cumulative spatial overload and overdevelopment of East Lothian's rural landscape.

The SORELL submission sets out the detailed planning arguments for each of these summary headings. A full list of policy breaches and key planning failures are presented in SORELL Representation – Section 3. Please refer to that submission as our own.

Additional arguments from the Community Council are briefly described on the following pages of this submission. These can be summarised as

1) ELCC note that the Voltalia submission for the Springfield Solar & BESS does not demonstrate how the **East Lammermuir Local Place Plan** has been taken into account in the proposal. This omission is a material planning failure, inconsistent with NPF4's expectations for development proposals to demonstrate alignment with validated Local Place Plans.

2) We wish to emphasise the absence of convincing evidence that the proposal to connect the Solar & BESS to the national grid in October 2031 will ever **offset the carbon emissions** associated with the construction, operation and decommissioning of the solar farm & BESS.

3) Non-compliance with the **Aarhus Convention.**

We make three additional comments in relation to our Local Place Plan, the impact on carbon emissions of the proposed Solar & BESS, and the Aarhus Convention.

1) ELCC note that the Voltalia submission for the Springfield Solar & BESS does not demonstrate how our **Local Place Plan** has been taken into account in the proposal.

The East Lammermuir Local Place Plan was validated and published on the East Lothian Council website in July 2024.

The East Lammermuir Local Place Plan was prepared on behalf of the East Lammermuir Community Councillors, residents and stakeholders in East Lammermuir, for submission to East Lothian Council in May 2024. The document is a 'Local Place Plan' in accordance with the requirements of the Town & Country Planning (Local Place Plans) (Scotland) Regulations which came into force on 22 January 2022 with the objective of "giving local people the opportunity to engage meaningfully and have a positive influence in the future planning of development in their areas". East Lammermuir Community Council considers that this document can be regarded as a representative view of a wide section of the community of East Lammermuir and we are content the plan has been registered and is being considered as an input to the Council's Local Development Plan 2.

There is a strong emphasis throughout the East Lammermuir Local Place Plan on Managing Change in the Just Transition. The Community Priorities identified in this section of the Plan (p. 17) are:

• Meaningful consultation and joined up approach to developments.
• Information about the long term impacts - including how to recycle the infrastructure.
• Planning traffic management - with advance communication on many channels, to be agreed with the community
• Charter which commits the developers to ongoing, meaningful consultation and information sharing.
• Balance between energy infrastructure and environmental impact
• Energy companies commit to jobs and opportunities to young people locally
• Understanding of the environmental impact on the landscape and coast

ELCC does not believe that the current Springfield Solar & BESS proposal demonstrates that these community priorities have been taken account of or addressed. As an example, we show at Annex B representations of the footprint of the final proposed scale of the equipment associated with the proposed Solar Farm & BESS, overlaid on the town of Dunbar, and separately that same footprint overlaid on Glasgow City Centre. This is by far the largest solar proposal in Scotland – we turn in our next point to possible reasons for this. (In short, it won't work on this site, no matter how big they make it.)

Further detail on each of these points is set out in the SORELL objection.

2) We wish to emphasise the absence of convincing evidence that the proposal to connect the Solar & BESS to the national grid in October 2031 will ever **offset the carbon emissions** associated with the construction, operation and decommissioning of the solar farm and BESS.

In support of these aligned arguments, we append

Annex C: Professor Gordon Hughes' in-depth critique of solar projects such as the proposed one, outlining exactly why the scale, cost and impact of the proposed development can't be economically justified. (Hughes, G, "A Solar Feeding Frenzy: https://cloudwisdom.substack.com/p/a-solar-feeding-frenzy)

Annex D: local resident Dominic Moynihan's calculation of the embedded CO2 emissions, compared with those saved should the proposal be built and connected to the national grid in 2031; shows that, based on the Developer's own figures and using figures published by DESNZ, if consented Springfield will never repay the C02e emissions expended in its construction, operation & demolition.

3. Non-compliance with the **Aarhus Convention**

The Aarhus Convention is a United Nations treaty providing public rights to environmental information, participation in environmental decision-making, and access to justice in environmental matters. It is a legally binding instrument for environmental democracy, intended to empower people to engage with environmental governance.

The United Kingdom is one of 48 Parties to the Convention (as of April 2025), and its effectiveness is monitored by the Aarhus Convention Compliance Committee.

Key Principles

The core of the Aarhus Convention is a triad of rights for the public:

- **Access to Information:**

The public has the right to access environmental information held by public authorities.

- **Public Participation:**

The public can effectively participate in environmental decision-making processes.

- **Access to Justice:**

The public has the right to a review procedure to challenge decisions made by public authorities that violate environmental laws or the two other rights.

Additionally, the Convention offers **Cost Protection:**

The Convention includes provisions for cost protection measures to limit the financial burden on groups bringing environmental challenges, ensuring that access to justice is not prohibitively expensive.

ELCC's Concern

We believe that the principles and protection provided by the Aarhus Convention have not been complied with during the consultation stage for the Springfield Solar & BESS planning application.

Several documents referenced in the Springfield Solar & BESS application by Voltalia and their agents ERM were inaccessible, contrary to the Aarhus Convention. Hyperlinks were provided to supporting documents, but on clicking through on these links local residents found that they were limited to particular readers, not including themselves. For example, membership of professional bodies was required to read some architectural documents. This membership was expensive, and may have been limited to people with particular professional qualifications. **This is not in line with the requirements of the Aarhus Convention, as it effectively limited the public's ability to participate in environmental decision-making processes.**

The Springfield Solar & BESS Consultation documents themselves were provided in hard copy, including at the Oldhamstocks Village Hall. Unfortunately all of these documents were removed by the applicant at the close of the consultation so we no longer have a copy to refer to in making our arguments here.

However, we note at Annex E some examples of data either not accessible or costly for members of the public to view.

Conclusion

East Lammermuir Community Council (ELCC) objects to the proposal and does not believe that planning permission should be granted.

We ask that Scottish Ministers reject the proposed scheme.

Annex A – Survey of local opinion

The Springfield Solar & BESS planning application was registered and published on 6 June 2025.

On 21 July an electronic survey was distributed to all residents of the Oldhamstocks Parish who have registered with the Oldhamstocks Community Association. A copy of the invitation email is attached. Hard copies were placed in the village hall with a secure box for completed surveys, including an additional question asking why the respondent could not access an electronic copy of the form. The survey closed for submissions at midnight on 11 August 2025.

A copy of the full survey form, with the numbers of respondents ticking each box is included here.

Annex A(i) Copy of email inviting residents to complete survey

To: Oldhamstocks Community Association members

From: Chris Bruce

21 July 2025

** Sent on behalf of East Lammermuir Community Council **

Dear Fellow Resident

As you know the community council is a statutory consultee for developments proposed in its geographical area.

East Lammermuir Community Council has deliberately kept at a distance from local responses to the Springfield proposal to date.

Now that the final planning application has been submitted East Lammermuir Community Council wishes to understand the views of those local residents who would be most affected by this proposal were it to be built.

Please take a few minutes to answer the simple survey you can find at https://form.jotform.com/251975547004056

All affected residents of the Oldhamstocks Parish (including the village itself, Dunglass, Bilsdean, Birnieknowes, Ferneylea and Cocklaw) who are aged 16 and over are eligible to complete one survey - and we would ask that everyone does that.

If you cannot complete the survey electronically, or know of someone else who cannot, there is a hard copy in the village hall at Oldhamstocks - and a box to post your completed survey. The hard copy has an extra question asking why you could not complete an electronic copy, so that we can evidence that no duplicate copies were submitted.
The survey will close for submissions at midnight on 11 August 2025.

For future information on energy developments in East Lammermuir, you may wish to sign up to Beth Landon's mailing list. You can do so at http://eepurl.com/jeENSA

With thanks in anticipation for your help in this important matter.

Chris Bruce

Chair

East Lammermuir Community Council

chair@elcc.scot

Annex A(ii)

Springfield Solar & BESS proposal Survey and results

Springfield Solar Farm & BESS

Voltalia has lodged a planning application to erect a solar farm and battery energy storage system on land to the North of Oldhamstocks, within East Lammermuir. This application comprises combined Solar PV panels and BESS with a total generating capacity 245MW. The application seeks an operational period of 40 years.

The planning decision will be made by Scottish Ministers on the advice of the Energy Consents Unit. You can view all the details on the Applicant's project website at: Springfield Solar Farm - Springfield.

East Lammermuir Community Council (ELCC) wishes to reflect the views of the residents in Oldhamstocks, Birnieknowes, Bilsdean and Dunglass on the above mentioned proposal. Hence, we are conducting a simple survey to ensure residents have the opportunity to make their views known through the Community Council, direct to the Scottish Government Energy Consents Unit.

Please answer the questions below as an individual. Every affected resident over the age of 16 can complete their own response to the questionnaire.

We received 90 completed responses. (Plus one who didn't answer the questions).

Results are shown in tabular form as absolute numbers and percentages.

Q1. What best reflects your view regarding the national shift away from fossil fuels to green energy and the effort to reach net zero?

Strongly Support	Tend to support	Neither support or oppose	Tend to oppose	Strongly Oppose
26	36	8	7	13
29%	40%	9%	8%	14%

Q2. What view best reflects your opinion regarding large scale solar farms?

Strongly Support	Tend to support	Neither support nor oppose	Tend to oppose	Strongly Oppose
1	10	8	26	45
1%	11%	9%	29%	50%

Q3. What view best reflects your opinion regarding large scale Battery Energy Storage Systems (BESS)?

Strongly Support	Tend to support	Neither support or oppose	Tend to oppose	Strongly Oppose
1	4	14	28	43
1%	4%	16%	31%	48%

Q4. What view best reflects your opinion on the proposed Springfield Solar Farm & BESS?

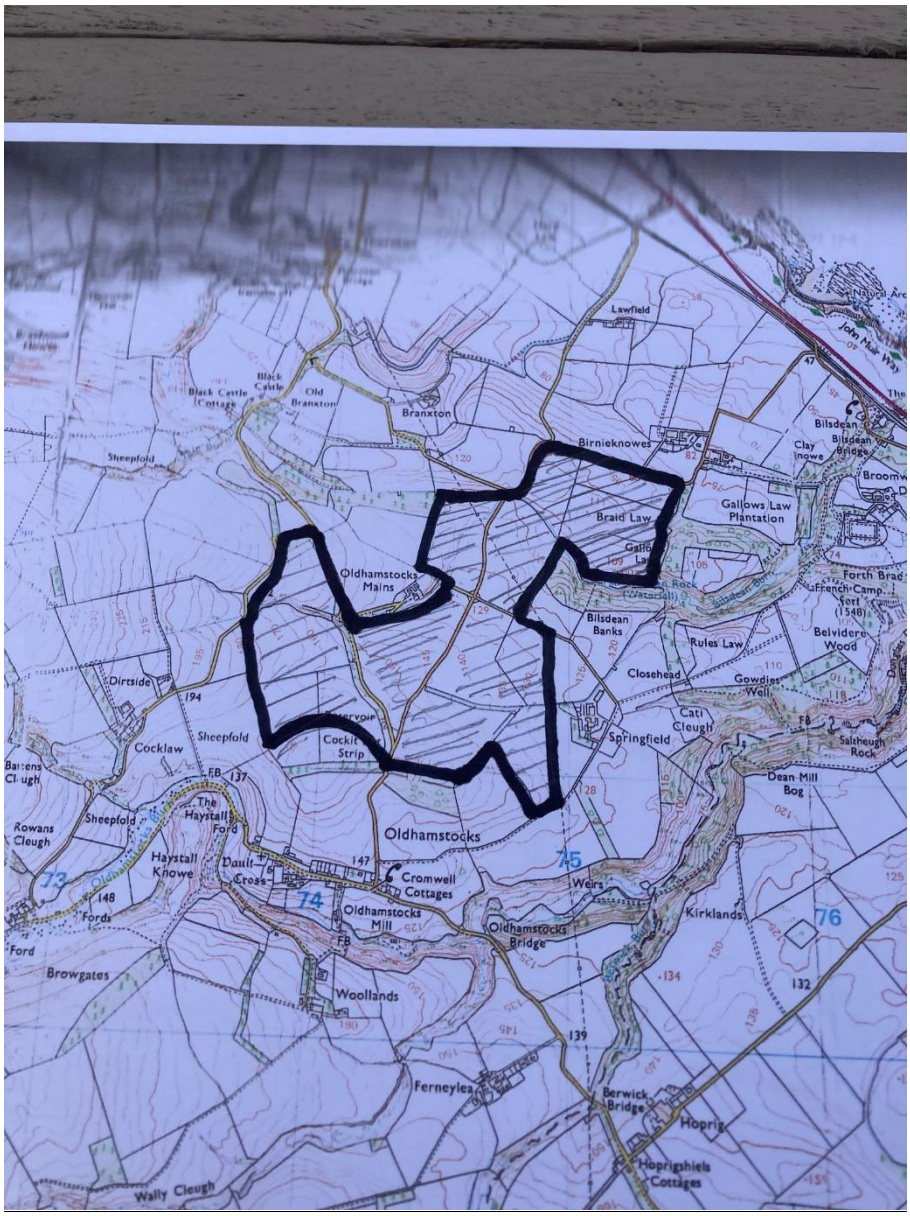
Strongly Support	Tend to support	Neither support or oppose	Tend to oppose	Strongly Oppose
1	0	1	4	84
1%	0	1%	4%	93%

Q5. Understanding the reasons for residents' views will help the community council to formulate its own response to the consultation. Please provide any other comments in support of your answers here.

Free Text response – themes closely reflective of the SORELL response.

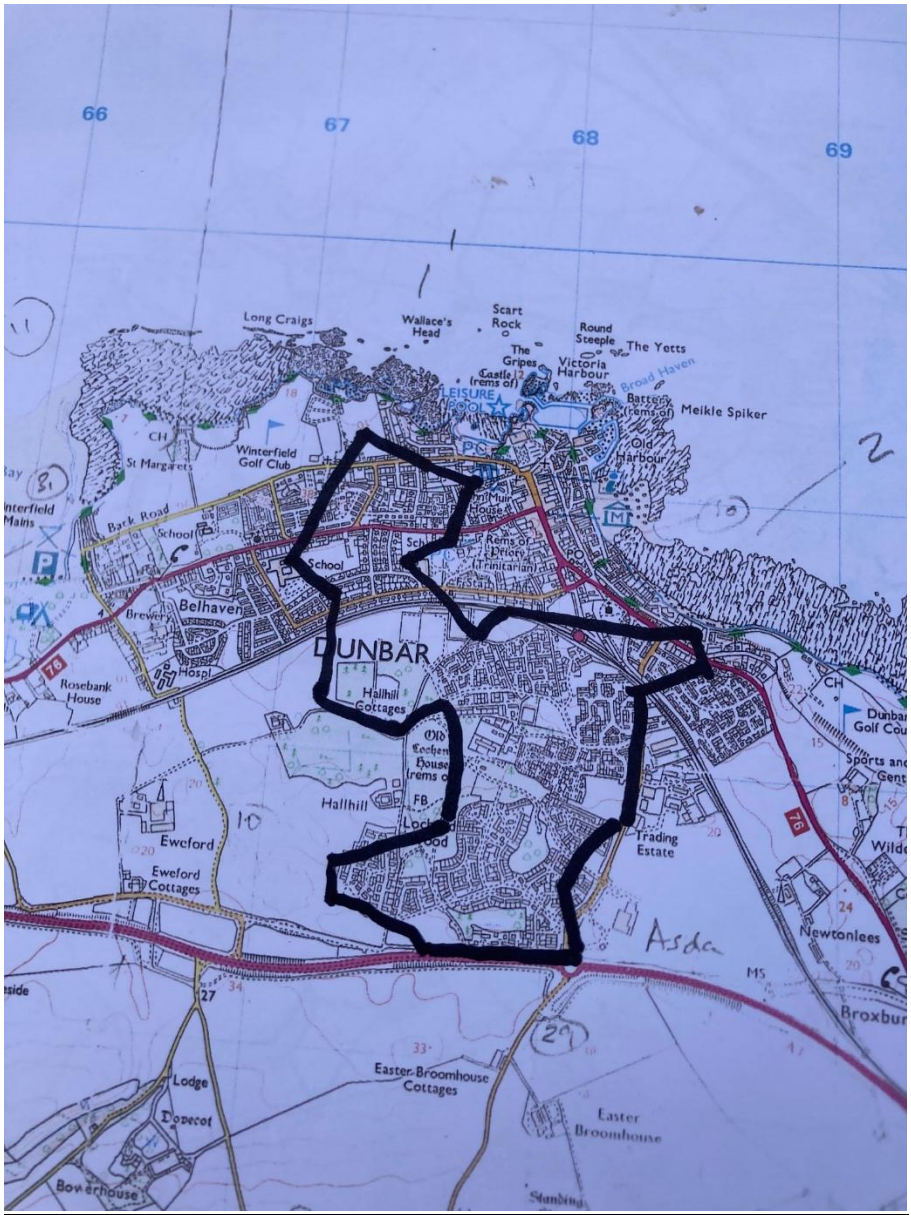
Annex B – size of development

Footprint of solar farm and BESS as described in the final planning application



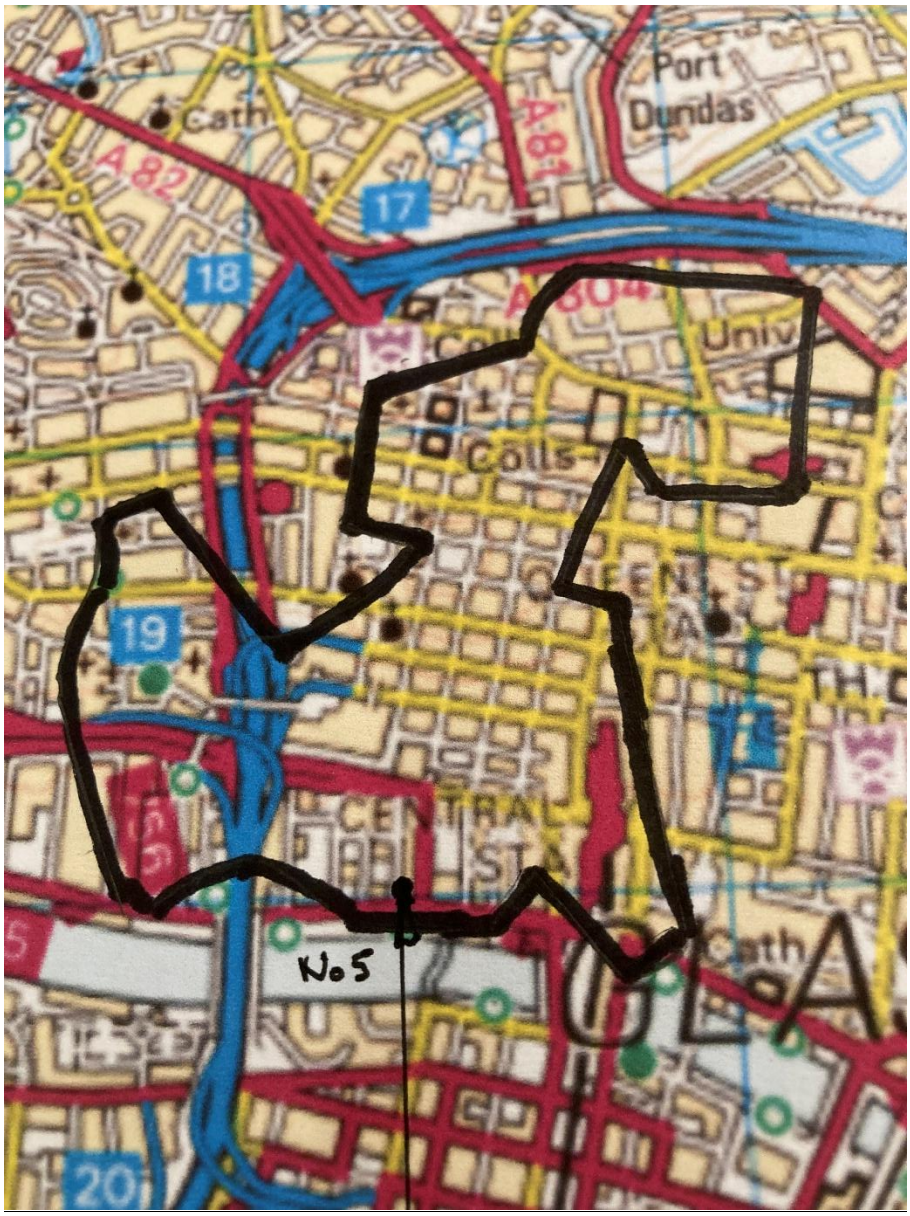
Annex B (continued)

Footprint of solar farm and BESS as described in the final planning application, overlaid on a map of Dunbar at the same scale



Annex B (continued)

Footprint of solar farm and BESS as described in the final planning application, overlaid on a map of Glasgow City Centre at the same scale



Annex C

Detailed analysis of economic case for the Springfield Solar & BESS proposal

Prof Gordon Hughes' Cloud Wisdom (14 March 2025)

The context for these thoughts is that since writing my post on the economics of solar power I have been contacted by several groups who face the prospect of large solar developments that are intrusive, badly designed and often make little economic sense. I will draw on a specific example – Springfield Solar Farm, which is being developed by a large solar operator called Voltalia. Its site is near to Innerwick in East Lothian. The project includes up to 165 MWp of peak solar capacity and a battery storage facility of up to 150 MW.[1]

My initial reaction to the proposal was to ask whether the developer was daft. While East Lothian is known as having a mild climate (by Scottish standards), the site latitude is nearly 56°N with all that means for solar radiation and the angle of the sun during much of the year. This can be checked by using the PVWatts calculator - the best non-commercial solar resource calculator that is maintained by the US National Renewable Energy Laboratory.

For Innerwick, PVWatts reports a net yield of 691 kWh per kWp of peak capacity per year for a tilt of 25 degrees after allowing for inverter and other system losses. As a comparison, the equivalent net yield for a site near Swanage, Dorset on the south coast of England is 970 kWh per year, i.e. 40% higher than the yield in East Lothian.

Two international comparisons illustrate how poor the solar resources in Scotland are: (a) our village of Civenna above Lake Como in Italy (surrounded by mountains at a latitude of 46°N) has an annual net yield of 1,174 kWh, and (b) Falmouth on Cape Code in Massachusetts (at a latitude of 41.6°N) has an annual net yield of 1,429 kWh.

These examples illustrate a separate point. This is the terrible quality of the advice offered to non-specialists by those selling solar installations. If you check online for the optimal fixed (year-round) tilt of solar panels in the UK, Google's AI will tell you 35 to 40 degrees reflecting the consensus of advice from installers. However, detailed estimates show that the optimal fixed tilt in Great Britain is about 25 degrees from Scotland to the South Coast.[2] In contrast, it is 30 degrees in Civenna and 32 degrees in Falmouth, Mass.

The reason behind these differences is not hard to work out. At latitudes of 50°N or greater the only thing that really matters is to maximize the yield from April to September. Those six months account for 82% of the optimal annual yield. Since electricity market prices tend to be lower than their annual average during the summer

months, the inverse correlation between monthly yields and market prices reduces expected revenue for a solar farm in Scotland by 6-7%.

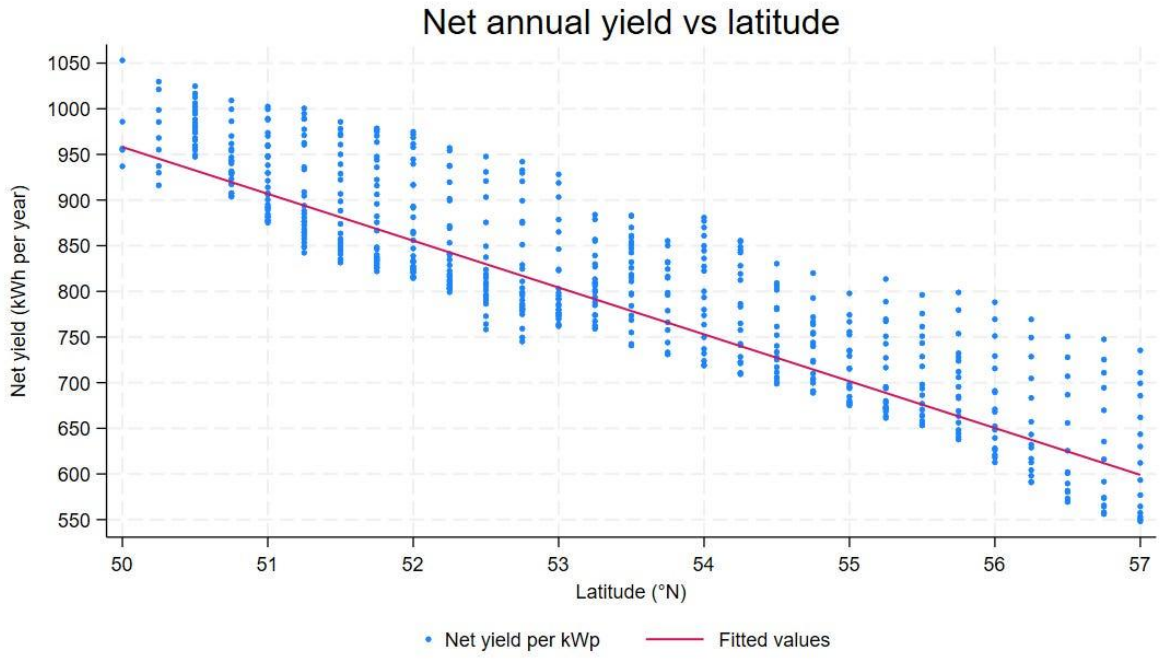
These simple back-of-the-envelope calculations prompt two broader questions. First, what is the distribution of solar resources over Great Britain as a whole? Clearly, the best locations are in the south of England, but what is the penalty for sites in the north of England or Scotland? Second, on what financial basis would it be worth investing in a large solar farm in Scotland or other parts of Great Britain? In economic terms this can be treated as asking: how does the locational payment per MW of capacity (including land rent) that solar farms can afford to pay vary by location?

I address the first question by using data by lat/lon grid square on solar irradiance for the 25 years from 2000 to 2024. The data was extracted from the ERA5 weather database maintained by the European Centre for Medium-Term Weather Forecasting (ECMWF). The grid squares are 0.25 x 0.25 degrees and the ERA5 database is constructed from a reanalysis of satellite weather data. The solar irradiance data consists of hourly measurements of two variables: (a) surface net solar radiation in Joules per square meter per hour, and (b) surface solar radiation downwards in Joules per square meter per hour. Both are converted to Watts per square meter per hour and when aggregated over a month they are expressed as kWh. The results are very similar for the two measurements. Hence, I will focus on solar radiation downwards, i.e. direct exposure to solar radiation, as it is less affected by local factors that might scatter or reflect solar radiation.

To obtain estimates of net yield, I have used PVWatts to obtain estimates of net monthly yields for a sample of locations at latitudes from 50.0°N to 57.75°N and longitudes, as far as possible, in the range from 2.0°W to 3.0°W.[3] This sample was used to calibrate monthly regression equations that predict monthly net yields from monthly solar radiation for each grid square. A land-sea mask was used to exclude grid squares for which land coverage is less than 1% (roughly 4 sq. km).

The predicted net yield for the grid square that covers the Springfield Solar Farm located is 715 kWh per year, a bit higher than the 691 kWh per year for the solar farm itself.

The graph below shows the distributions of net annual yields by latitude together with the line fitted to these points. The fitted line is calculated using weights for each observation equal to the proportion of each grid square covered by land. Many of the grid squares with the highest net yields for each latitude cover coastal areas.



The fitted line indicates that the expected value of annual net yield from solar panels will decrease by about 50 kWh per kWp of peak capacity for each degree of latitude north of 50°N. At an average price of about £72 per MWh in 2024 that translates to £3,600 per year per MWp. For a solar farm with a capacity of 100 MWp that is a difference in gross revenue of £1.8 million per year between locations in Somerset, Hampshire or Sussex at a latitude of 51°N or in the Lothians at a latitude of 56°N.

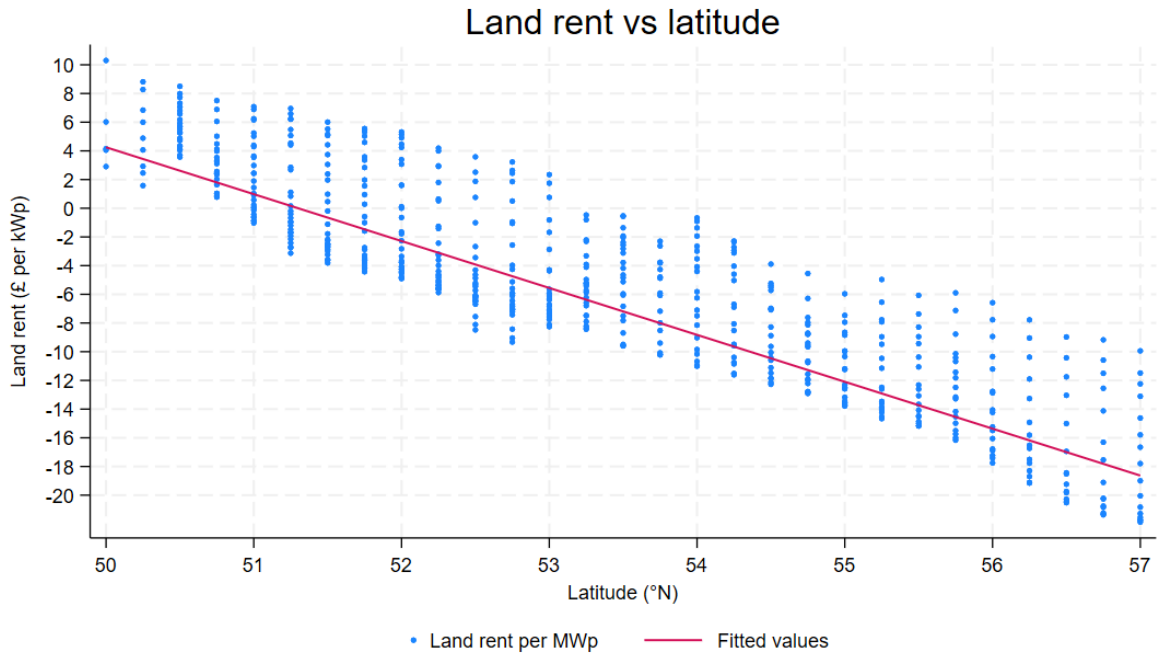
To provide context, £1.8 million per year for a solar plant of 100 MWp is roughly double the annual Transmission Network Use of Service (TNUoS) charge for a solar plant located in National Grid's Somerset and Wessex Zone. However, it is similar in magnitude to the 2024-25 TNUoS charge for a solar plant located in the Lothian and Borders Zone. By choosing a location in Scotland Springfield Solar Farm is not only sacrificing output and, thus, generation revenue, but it will pay a much higher annual TNUoS charge because grid capacity is heavily congested in Scotland.

This brings me on to the Alice in Wonderland world of solar economics in the UK. In recent CfD auctions the strike prices for solar projects (all at 2024 prices) have gone from £64 per MWh for AR4 to £66 per MWh for AR5 to £70 per MWh for AR6. At £70 per MWh a new solar project will only cover a real pre-tax cost of capital of 0% if we assume that average capex and opex costs are one-half of what the evidence from company accounts examined in my solar study suggest are reasonable.[4]

In this fictional world a solar farm with a net yield of 926 kWh per kWp – the average net yield for plants located at 51°N – can afford a total locational payment of about £16,000

per MWp. This amount would have to cover rent, business rates and TNUoS charges. Solar plants benefit from a general exemption from business rates for plant and machinery used for renewable energy generation and storage, but business rates are still payable on land rents and infrastructure assets such as roads and buildings.[5] The standard rating formula in England since 2023 is to set a rateable value of £8,250 per MWp. For large solar farm the effective tax rate is 54.6% in 2024-25, which translates to an annual bill of about £4,500 per MWp for business rates.

Such a payment would permit a rent payment of £2,400 per MWp per year in real terms. This is consistent with indicative figures of a base rent of £800- £1,000 per acre adjusted for inflation and 2-3 acres per MWp of capacity. A turnover or royalty rent of 5% of gross revenue would be significantly higher but may be less attractive to landowners both because of the risks and potential exclusions from eligible gross revenue.



The figure above translates the net yields in the previous figure to land rents per kWp. In all cases I have assumed that the TNUoS charge is £9.10 per kWp and business rates are £4.5 per kWp. There is large variation in the land rents that can be afforded at different grid squares for any specific latitude, but there are no grid squares for which a positive land rent can be afforded if the latitude exceeds 53°N, i.e. north of Stoke-on-Trent, Derby and Nottingham.

Few landowners would be willing to accept a land rent that is significantly less than £2.0 per kWp because of the length of the commitment required – up to 40 years. On this

basis, potential locations for developing solar farms are concentrated in three areas: (a) East Anglia and South-East – longitudes east of the Greenwich meridian and latitudes from 51°N to 53°N; (b) the South-West and South Wales – longitudes west of 3°W; and (c) the South of England – latitudes south of 51°N.

These areas account for less than 10% of the land area of Great Britain and include a large portion of the richest communities in the UK. Many of these communities attach a high value to preserving the landscape and other features of their local areas. In addition, agricultural values tend to be high, setting a higher base for the land rents that must be paid. Thus, it is hardly surprising that there are often strong objections to the development of solar farms as well as relatively high costs of both construction and operation.

To return to my original observation. It is, indeed, daft to contemplate developing solar farms in locations such as East Lothian and further north in Scotland at the CfD strike prices that were set in the last three allocation rounds – AR4 to AR6. Why such proposals are pursued is a mystery. None of the data and analysis presented above is difficult to obtain and understand.

Even on assumptions that are either extremely optimistic (based on actual evidence rather than fantasy forecasts) or inconsistent with current economic conditions, developing solar plants in locations north of 53°N makes no sense. Maybe developers believe that future offtake prices will be considerably higher than current CfD prices. Alternatively, there may be some other secret sauce that means such projects might be viable. That might be an expectation that the current government will be so desperate to meet its Net Zero targets that it will abandon any semblance of fiscal discipline to ensure that new projects have the incentives to go ahead. Of course, such a belief bodes ill for those who will have to pick up the bills!

Hence, my reference to a solar feeding frenzy in the title of this piece. There is a rush to get planning consent for ever larger solar projects. These projects will almost certainly never be financially or economically viable. The goal for solar investors seems to be to create a portfolio of speculative options, a few of which might just be worth exercising in future if market or CfD prices increase substantially.

In my experience, few of the staff who work for the developers have any understanding of the game, so they take the projects seriously. That does not excuse the behaviour of investors and the senior managers of developers who feed gullible journalists and bureaucrats large amounts of green nonsense. They should be fully aware that many of their development options have little or no chance of being exercised.

The current consensus among lobbyists, journalists and policymakers in London is that it is the planning system that is to blame for low economic growth. That is codswallop. Certainly, the planning system is inefficient and arguably broken. However, that is a

consequence of the overwhelming number of badly designed and unviable projects that are submitted for planning consent with little or no prospect that they will ever make financial sense.

Among other things any applicant for planning consent should be required to post a large bond - maybe 10% of the expected capital cost of the project - that would be forfeit if the planning consent is granted but project development does not commence within, say, 2 years. That would entirely change the incentives for developing and proposing viable projects. It would also require a substantially different approach to how subsidies are allocated, but that would certainly not be a bad thing.

[1] The acronyms kWp and MWp are used to refer to the peak capacity of solar panels and solar farms under standard operating conditions. Such conditions are rarely, if ever, met in the UK, so that the peak capacity of a solar farm is a notional number and has limited operational relevance. The capacity of battery storage plants is usually reported as the maximum level output that they can achieve. Their storage capacity is reported as the number of hours for which that maximum output can be sustained. Most battery storage plants in the UK can sustain their reported output capacity for no more than 2 hours.

[2] That should be a warning for anyone who believes that AI based on large language models is of any use in cases where the online consensus may be wrong.

[3] For latitudes of less than 51°N it was necessary to select locations with longitudes west of 3.5°W.

[4] The financial analysis assumes that the net yield declines at a rate of 1% per year while opex costs excluding locational payments increase at a rate of 1% per year. These parameters are below the rates of decline/increase estimated in my study of the economics of solar generation. As noted, the assumption of a real pre-tax cost of capital of 0% is absurdly low given the risks of investing in solar generation, but it is not possible to make sense of CfD bids on any other basis.

[5] The exemption from business rates for renewable plant and machinery is somewhat less significant than most sources make out. It is a general principle that rateable values (the tax base for business rates) exclude plant and machinery. Drawing the boundaries is difficult, especially for equipment that forms part of buildings such as cables and lifts, so the “exemption” is more of a clarification than a major change

Addendum

Professor Hughes’ statement is dated March 2025, which is prior to the publication of the Contracts for Difference Allocation Round 7 (July 2025).

In order to bring the statement up to date, Prof. Hughes provided the following text on 26 August 2025:

The Administrative Strike Price or maximum price for AR6 was £61 per MWh but the realised price was about £50 per MWh - well below the maximum (all at 2012 prices).

The ASP for AR7 has been raised to £75 but again it is likely that the realised price will be well below that maximum.

Since solar projects are treated as a single pot, there will always be a strong bias towards projects submitted by developers in regions with the best solar resources. I don't think that there is any likelihood that the post-AR7 outlook for the Springfield development will be any better than it was based on the AR6 prices. What is most likely is that development and operating costs have shifted upwards in the same way with the result that the range of latitudes of from 52 to 53 degrees will remain the dividing line between projects that might realistically be viable and those which are not (in conventional terms).

Thus the economic arguments about the non-viability of the Springfield proposal remain, and East Lammermuir Community Council remains concerned that this project will never turn a profit. This in turn means that and Financial Investment Decision at Voltalia Headquarters will be interminably delayed – and the threat to the local environment and community wellbeing will simply hang over the area for years to some. That does not support a Just Transition, and as such constitutes a strong argument for rejecting the planning proposal.

Annex D

Springfield Solar & BESS Carbon Assessment

Submitted as a separate attachment entitled

ENERGY CONSENTS UNIT SUBMISSION REF ECU00004815 SPRINGFIELD SOLAR FARM & BATTERY ENERGY STORAGE SYSTEM (BESS) RESIDENT'S REPRESENTATION BY DOMINIC CHARLES MOYNIHAN

Annex E

Aarhus Convention – non-compliance

Springfield Solar Farm & BESS; inaccessible documents included in support of the Environmental Impact Assessment / final planning application.

In terms of unavailable data, some examples are:

Volume 1 - Chapter 9: Water Resources and Flood Risk

11 CIRIA (2015). C741 Environmental good practice on site guide. 4th edition. Available online: https://www.ciria.org/CIRIA/CIRIA/Item_Detail.aspx?iProductcode=C741&Category=BOOK (Not available)

Volume 1 - Chapter 10 Geology and Soils

17 Landmark Information Group (2023) Argyll Environmental Site Solutions Report. Report Reference: 312723645. [Accessed March 2025]. (Must be a member - cost £345 + VAT)

18 Landmark Information Group (2025) "Envirocheck Report for site at Springfield, UK. Order Number: 371214905". [Accessed March 2025]. (Must be a member – cost £345 + VAT)

Volume 3 - Chapter 3 - Technical Appendix: 3.1 - outline Construction Environmental Management Plan

4 Environment Agency (2014): Pollution prevention guidance (PPG) Available at: https://webarchive.nationalarchives.gov.uk/20140328090931/http://www.environmentagency.gov.uk/business/topics/pollution/39083.aspx (Achieved material accessed 14/06/2023) (Withdrawn)

7 IEMA (2008) Practitioner Series No. 11, Waste Management: A Guide for Business in the UK. Institute of Environmental Management and Assessment (Unavailable)

10 Johnson & Hallberg (2005) Acid mine drainage remediation options: a review [Online] Available at: Acid mine drainage remediation options: a review - ScienceDirect (Accessed 14/06/2023) (Must apply through organisation)

Volume 3 - Chapter 6 - Technical Appendix 6.5 Residential Visual Amenity Assessment

2 Landscape Institute Technical Guidance Note 06/19: Visual Representation of Development Proposals (Under Review)

Volume 3 - Chapter 8 - Technical Appendix 8.6 - Shadow Habitat Regulations Appraisal

6 Tyldesley, D., and Chapman, C. (2013) The Habitats Regulations Assessment Handbook. DTA Publications Limited (New subscriptions suspended)

In terms of available but at a cost, some examples are:

Volume 1 - Chapter 8: Ecology and Nature Conservation

32 Harris, S., and Yalden, D.W. (2008) Mammals of the British Isles Handbook (4th edition). The Mammal Society, Southampton. (Amazon £82.99)

39 Gilbert, G., Gibbons, D.W., and Evans. J. (1998) Bird Monitoring Methods. RSPB (£44.23 Amazon)

42 Bibby, C., Burgess, N & Mustoe. S. (2007) Bird Census Techniques, 2nd edition. Academic Press, London, UK. (£61.49 Amazon)

43 Hardey, J., Crick, H., Wernham, C., Riley, H. & Thompson, D. (2009) raptors: a field guide to survey and monitoring. 2nd edition. The Stationary Office, Edinburgh, UK. (£86.68 Amazon)

Volume 1 - Chapter 10 Geology and Soils

7 BS 10175:2011+A2:2017 (2017) "Investigation of potentially contaminated sites. Code of practice". British Standards Institution. [Accessed March 2025]. (£330)

8 BSI Group (2009). 'BS 5228:2009+A1:2014 Code of Practice for noise and vibration control on construction and open sites' (£330)

9 BSI Group (2019). 'BS 4142:2014+A1:2019 - Methods for rating and assessing industrial and commercial sound'. (£330)

10 BSI Group (2014). 'BS 8233: 2014 Guidance on Sound Insulation and Noise Reduction for Buildings'. (£330)

11 ISO (2024). 'ISO 9613-2:2024 - Attenuation of Sound during Propagation Outdoors'. BSI Standards Publication (£306)